

THE DEPARTMENT OF INDUSTRIAL ENGINEERING



SUBMISSION FOR:

NMMU ENGAGEMENT TEAM AWARD 2014 (for 2013)

CONTACT PERSON:

Dr Ann Lourens

HoD Industrial Engineering

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- 1.2 Establishing and improving professional or academic standards within a profession or discipline
- 1.3 Participating in an elected or appointed capacity in the governance of a department/school/faculty or at the institutional level
- 1.4 Contributing to the strengthening of the core functions of the department/ school/faculty and University (e.g. programme marketing, student orientation etc)
- 1.5 Representing the University on external committees, task teams or in public forum
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- 4.3 Engaging in sustainable community organisation activities and providing students opportunity to engage in volunteering and community service activities (discipline and non-discipline based).



1. OVERVIEW OF THE DEPARTMENT

This section gives a brief description of the department of industrial engineering's vision, mission, values, goals and motto. This is followed by a description of the strategic goals of the department that is centered on marketing, research, teaching and learning, improving processes, community engagement, facilities, partnerships/industry engagement and maximising the potential of staff. The strategic priorities document is followed by a SWOT analysis of the Department.

We, as a Department believe that one of our major strengths is our well-developed relationship with our Industry. We believe that the Industry trusts us and this is evident in the interaction they request from us, be it in the form of a short learning programming, offering in-service training to our students, offering students projects and requesting consultations to name but a few.

By receiving the "Teaching and Learning team award 2012" we, as a department have proved that we are motivated and committed to giving the best service to our customers and partners. The quality of our work and relationships is confirmed by the Continental international project whereby the Department was selected to train Continental Tyre Industrial engineering employees worldwide. The Department was also the institution of choice of the Western Cape furniture Initiative who, in 2012 entered into negotiations for short learning programmes to be delivered in Cape Town to furniture manufacturers. This is the result of initiating and developing relationships with external partners and is thus evident that the Department is active in the local industry, in other regions as well as internationally.

It has been a long-term objective of the Department to "grow research". Within the past three years, two staff members have obtained doctoral degrees and currently every other staff member is involved in either Master or Doctoral studies. Formal research is conducted within the industry with the objective of contributing towards it (along with the rest of the region), thereby improving our engagement with our industry.

Our research outputs can be summarised as follows:

- 2011 – 1 Masters student
- 2011 – 1 Doctoral student
- 2012 – 3 Doctoral students
- 2012 – 2 Research articles
- 2012 – 3 Conference presentations
- 2013 – 3 Conference presentations
- 2013 – 2 Journal articles

WELA (women in engineering leadership association) has also made a large contribution to improving our engagement with industry. Short learning programmes are offered under the auspices of WELA and since 2011, WELA has published a yearly edition of "inspirational women." This publication displays at least ten women (per edition) who are employed in the local manufacturing industry. International visits (Manchester, Sheffield, Edinburgh) were undertaken to promote WELA and in 2013 WELA received a donation of R60 000 from the NMMU Legacy Programme.

We are also very proud of our Lean Unit and have been busy consulting, networking as well as offering short learning programmes under this unit for approximately four years.

Our flagship laboratory in the New Engineering Building is ready to use and is fitted with state-of-the-art equipment. Andre Louw recently visited the Engineering School of ECAM in Lyon and received positive feedback. An internship programme with this school is a future opportunity for NMMU.



The Teaching and Learning Award winning team award



Mr Joubert and Mr Snyders with the award

To summarise: Departmental engagement related highlights:

1. Conti International project (facilitation of engineering related SLPs for Conti international in several overseas locations)
2. Lean Unit for Process development (coaching, training, SLPs, consulting and research)
3. Women in Engineering Leadership Association (wela)
4. Business Engineering laboratory development
5. Growth in research outputs
6. Professional registration negotiations: MIT - LAI (Lean Advancement Initiative)
7. Collaborative agreement with MIT (Prof Earll Murman, LAI ED-NET director MIT/Ford Professor of Engineering)
8. Professional collaboration University of Navarra , Spain (Prof Mateo) (Lean research)

International Collaboration:

1. Lean Unit: Karl van der Merwe: Visited with Mississippi University (2012)
2. WELA: Visit with Paal Grandal from University of Agder
Visit to Manchester University, Sheffield Hallam and Edinburgh Napier
3. Continental project: Visited Hannover and facilitated SLP's in USA and Slovakia
4. International Conference presentation: ASEE, Atlanta and Georgia

2. STRATEGIC PLANNING

NMMU VISION: 2020

To be a dynamic African university, recognised for its leadership in generating cutting-edge knowledge for a sustainable future.

NMMU MISSION

To offer a diverse range of quality educational opportunities that will make a critical and constructive contribution to regional, national and global sustainability.

FACULTY VISION: 2020

To lead in professional technological education and innovation.

Dept of Industrial Engineering

VISION

To be the leaders in all aspects of Operations, Industrial and Business engineering through sustainable partnerships, innovation and commitment to quality.

FACULTY MISSION

To be a people-centered faculty offering internationally recognized academic programmes developing sought-after graduates. We work in partnership with external organizations through our cutting-edge research and engage our students as partners in generating innovative solutions and services in communities of learning.

Dept of Industrial Engineering

MISSION

Our mission is to work for the growth of our stakeholders by providing excellent academic training, innovative research, scholarship and professional expertise.

FACULTY MOTTO

Innovating tomorrow

Dept of Industrial Engineering

MOTTO

We engineer business for tomorrow

FACULTY VALUES (Source: Vision 2020 Strategic Plan)

- Excellence
- Integrity
- Professionalism
- People-centeredness
- Respect for diversity
- Taking responsibility
- Respect for the natural environment

Dept of Industrial Engineering

VALUES

- Strive for departmental innovation and excellence.
- Empower and facilitate achievement of academic excellence and professionalism for all staff and students.
- Promote engagement through research, innovation and consultation that responds to current industrial needs (Industry engagement)
- Encourage employee involvement in community engagement.
- To be a leader in the scientific/technical knowledge application for industry.
- To be a people-centred Department which promote diversity of ideas and an environment which encourages open communication, personal development and creativity.
- To promote integrity, responsibility as the foundation of all systems, processes and interaction within the department.



Department of Industrial Engineering
STRATEGIC PRIORITIES 2013



1. MARKETING

2013 strategy:	ACTION	DATE	PERSON
Presentation to:			Jaco, Cobus, Zandra
STEM			Jaco, Cobus, Zandra
Engineering week			Jaco, Cobus, Zandra
Foundation course			Jaco, Cobus, Zandra
Open day			Jaco, Cobus, Zandra
Facebook			Jaco, Cobus, Zandra
Website: Lean Unit, Department and WELA			Jaco, Cobus, Zandra
DQS			Jaco, Cobus, Zandra
WELA			Ann, Nicole and Zandra
Advertising			
Daniel Pienaar			Zandra
Framesby			Zandra
Westering			Zandra
Way to go			Zandra
Internal marketing			Zandra
Alumni			Zandra
Lean Unit in East London & our full time courses			Karl and Nicole

2. RESEARCH

2013 strategy:	ACTION	DATE	PERSON
X 4 Masters students (Renaldo, Gerald, Vitor, Jaco)			Karl
X 3 Doctoral student (Piet, Howard, Edward)			Karl
X 4 conference presentations (WAICE, SAIIE, ASEE)			Ann & Jaco. Karl, Andre, Ann.
X 3 journal articles			Ann. Karl. Ann & Jaco
LEAN unit: Post graduate students Operations Society UMICORE Lean Training WESTERN CAPE FURNITURE INITIATIVE (Lean) VW PST INTERNATIONAL COLLABORATION – invite USA Colleagues Two open evenings Lean in Health care Review Post graduate entry requirements			Karl

Funding for post graduate students		
Quality association establishment		Andrew
x 1 research proposal +		Jaco, Andrew.
x 1 research concept		Andre
WELA longitudinal study		Ann, Nicole

3. TEACHING and LEARNING

2013 strategy:	ACTION	DATE	PERSON
	Writing skills intervention		Jaco
	Further refinement of EIS and collaboration with CTLM		Jaco, Ann, Zandra
	WOW		Ann, Nicole, Zandra
	MNE 1 subject – involve IE		Ann, Jaco
	Blended learning		Jaco, Cobus
	Shop floor orientation workshop (in new lab)		All
	HEQF/Convener		Andrew
	HEQF development		Andrew

4. ADMINISTRATION / SOCIAL /IMPROVING PROCESSES

2013 strategy:	ACTION	DATE	PERSON
	Bi-weekly meetings		Ann, Nicole
	Corporate iron man (3 teams)		Jaco, Zandra
	Celebrate achievements		Nicole
	IE Forum		Cobus
	Motivation for new secretary		Ann, Nicole

5. COMMUNITY ENGAGEMENT

2013 strategy:	ACTION	DATE	PERSON
	School of Engineering project		Nicole

6. FACILITIES

2013 strategy:	ACTION	DATE	PERSON
	Close passage		Ann
	IE Lab development		Andre
	Move to New Engineering Lab (new offices)		Ann
	Environmental Health and Safety for the New Engineering Lab		Andrew

7. PARTNERSHIPS/INDUSTRY ENGAGEMENTS

2013 strategy:	ACTION	DATE	PERSON
	Chair in Operations Management and Industrial engineering		Ann
	International training with Conti		Ann, Nicole, Jaco, Cobus
	Short course programme		Ann, Nicole, Zandra
	Lean in Health care		Karl

8. MAXIMISE POTENTIAL OF STAFF

2013 strategy:	ACTION	DATE	PERSON
	MTM training		Cobus
	Request for more research related courses		Ann



SWOT ANALYSIS 2013

STRENGTHS

Well qualified staff	
Well-developed trust relationship with industry	
Motivated, dedicated staff	
Well developed, relevant course content	
Good reputation among industry	
Preferred choice for in-service and employment	
High employment	
Highly favourable evaluation and ECSA accreditation	
Internationally competitive students	
Provide in the needs of industry	
Offering relevant short courses to industry	
Financially viable	
3 rd stream income generated	
Active involvement in masters, doctoral and post-doctoral research	
Innovative research (Lean)	
6 potential masters student	
4 doctorate student	
Practical application of research in industry through consulting	
Innovative teaching and learning	
Reflective practiced based scholarship geared towards interventions for student development/guidance	
Academic empowerment intervention for IE students	
Workplace orientation workshop	
WELA	
Professionally registered staff	
Student forum	
Professional PR practitioner	
More focused marketing approach	
Good staff culture	
Western Cape Furniture initiative	
Continental facilitation project	

WEAKNESSES

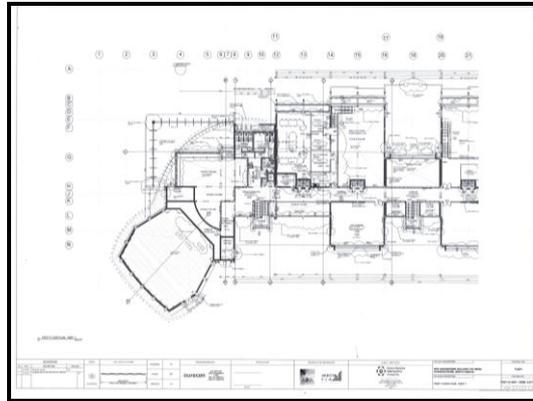
Shortage of academic staff due to budget constraints	
Shortage of administrative staff	
Infrastructure – open passage	
Short academic year	
Poor support services (HR, Faculty office, Admissions)	
Registration process (Since 1982)	
Insufficient staff, due to workload and budget constraints, to promote Master and Doctoral students	
Lack of relevant research workshops	
Too few conferences being attended due to lack of budget	
Corporate marketing (marketing IE)	
Writing skills of students	
Post graduate outputs	
Insufficient NCWA funding	

Poor post graduate research students	
Available funding for post graduate students	
Divided staff due to office/infrastructure	
OPPORTUNITIES	
Lean unit	
Quality association	
MNE 1 – Industrial spin. Partnership with Mechanical.	
Relationship with DQS	
Marketing the formal (STEM) and short courses	
Internal marketing	
Alumni	
International training with Conti	
Niche area development (Lean process)	
Blended learning	
ECSA accreditation (marketing tool)	
Innovative research (Lean, Quality)	
SWEAT lab courses	
Well qualified staff	
Innovative teaching and learning	
Professionally registered staff	
AIDC employment opportunities	
AIDC Advisory panel/Lean interest group (LEAN UNIT)	
Chair with Aberdare, UMICORE, Continental (LEAN UNIT)	
Steering Committee for Lean programme at UMICORE (LEAN UNIT)	
International visitors (Ole Miss, St Cloud,) – in order to further projects	
Operations Society (Karl)	
East London courses	
No maintenance budget for Lab	
THREATS	
Competition (PMI, Sapics, House of Quality)	
OPS student numbers	
Shortage of staff to lead research	
Lack of research related training	
Budget constraints (cannot fill vacant post)	
Cross subsidisation	
Environment health and safety of Labs	



The Industrial Engineering Department

SECTION B: Engagement Criteria



1.ENGAGEMENT THROUGH PROFESSION/DISCIPLINE-BASED SERVICE PROVISION

This includes activities that contribute to the advancement of the disciplines/profession of applicants and in this motivation includes the following activities:

- 1.1 Serving as an elected officer of a professional society/council/board/association etc.
- 1.2 Establishing and improving professional or academic standards within a profession or discipline
- 1.3 Participating in an elected or appointed capacity in the governance of a department/school/faculty or at the institutional level.
- 1.4 Contributing to the strengthening of the core functions of the department/school/faculty and University (e.g. programme marketing, student orientation etc).
- 1.5 Representing the University on external committees, task teams or in public forum
- 1.6 The provision of discipline-informed expert opinion to internal external stakeholders



ACTIVITY 1.1	Serving as an elected officer of a professional society/council/board/association etc.
Participant: ✓ Dr K Van Der Merwe	Dr Van Der Merwe as a registered Professional Engineering Technologist regularly serves on the Engineering Council of South Africa (ECSA) accreditation teams to accredit Industrial Engineering Diplomas and Bachelor degrees offered at Universities of Technology and Comprehensive Universities of Technology.

Criteria 1: The impact and significance of the engagement activity

ECSA is mandated through a MOU to accredit the Engineering, diplomas and degrees offered by HEI's. Being appointed as an assessor on a national basis in this peer judgment process is an honour for the individual as well as the institute at which he/she teaches. It adds significant value in standards setting and allows participant accreditors to see and experience the process and provide valuable feedback to their own institutions w.r.t best practices and educational advancements within the teaching and learning environment. Sharing with fellow NMMU academics the best practice activities and innovation seen further ensures that NMMU is always at the cutting edge and that our graduate attributes are in line with professional and industrial requirements.

Ensuring continuous high levels of academic standards and professionalism is also the key for sustained academic activities and accreditation with international agreements which with through the variety of signatories assures the international status of engineering qualifications as listed below:

- ✓ The Washington accord (BEng Degrees)
- ✓ Sidney Accord (BTech Engineering degrees)
- ✓ Dublin accord (Engineering Diplomas)

Criteria 2: The intellectual endeavors contributed by the engagement activity.

HEI accreditation requires that the composite accreditation team (Educationists from different HEI's and Industry) is fully au fait with the relevant discipline subject matter, sound educational teaching and learning processes, industrial expectations and technology advancement. Such accreditors therefore are selected with the above mentioned in mind and are required to apply unbiased and well informed peer judgment which will not only highlight possible problem areas, but will also be able to discuss best practice

Criteria 3: Communication and dissemination of knowledge and expertise.

Knowledge and expertise is disseminated in the teams during the actual accreditation process when evidence provided is perused and studied and judgments w.r.t academic standards are made.

Knowledge and expertise gained during the process is fed back to the department and school during departmental/school meetings as well as very valuable in house self-evaluation meetings which forms part of continuous quality and standards improvement processes

Criteria 4: The strategic importance of the role performed by the individual/team.

The active participation on professional accreditation processes ensures that the home department of Industrial Engineering as well as the rest of the Engineering school is strategically informed w.r.t the accreditation processes and is exposed to best practice. In turn, this ensures continued accreditation status for the relevant department. The result of this for NMMU was that the Industrial Engineering department has an unblemished accreditation record for the last 8 years

Criteria 5: The extent to which the engagement activities are acknowledged/recognised.

Engagement activities in relation to the serving on ECSA accreditation panels are highly regarded by other HEI's and peers and are also held in high esteem by Industry. It also firmly establishes the bona fides of the HEI where the individual is employed. Due to these activities, NMMU has been firmly established as a leader in academic excellence and quality assurance processes.

Criteria 6: The integration of engagement into the core academic functions.

Quality assurance and continuous academic programme development are core functions to ensure excellent and relevant qualifications as well as graduates with the required attributes. The active participation in accreditation is therefore fundamental to ascertain the high-level standards required and to drive continuous academic development within the department of Industrial Engineering and in the School of Engineering in general.

Contacts

1. The Chairperson: ECSA Technology Programme Academic Committee (TPAC): Mr C Stuurman
 - a. Waterview Corner Building, 2 Ernest Oppenheimer Avenue, Bruma Lake Office Park, Bruma, 2198,
 - b. JohannesburgTel/Direct: +27 (0)11 607 9572 | Fax: +27 (0)11 622 9556; cell 0813920016
2. The Director: School of Engineering NMMU: Prof P McGrath

EXHIBITS:

The exhibits below shows ECSA related communication and an accreditation visit schedule

From: Viola Matlhare

Sent: 22 May 2013 09:27

To: 'Rod Harker'; 'Vermaak Herman'; rudolph.evert@lebohang.com; 'Andrew Kisten Naicker'; 'van der

Merwe, Karl (Dr) (Summerstrand Campus North); 'Zawilska, Ewa'; 'Jacobs, Keith'; hughjeffery@telkomsa.net; 'Frans Waanders'; 'Nyembwe, Didier'; 'Suresh Ramsuroop'; 'Wolf Bernhardt'; trevor@sun.ac.za; 'Thomas William Mckune'

Subject: FW: Tshwane University of Technology Evaluation of the new programmes

Dear Member

The HEQSF provides for new programmes to be offered by the Engineering Technology Education Providers. A number of these new programmes will replace those currently being offered and provide for seamless articulation. The Providers that envisage offering the new programmes that are aligned with the ECSA suite of standards are required to submit a letter of endorsement from ECSA.

Tshwane University of Technology requested ECSA for a letter of endorsement for the following attached programmes.

Your expertise is well aligned to make a judgment for ECSA in respect of the alignment with the ECSA Standards for the programme the provider wishes to offer. You are kindly requested to study the submission and compare the standard and content of the programme with the ECSA standards. The panel tasked with this responsibility for the discipline is as follows:

A template (**Qualification Evaluation for letter of endorsement**) for your response is attached for your completion.

Kindly advise me regarding your availability to assist ECSA with this responsibility.

MS Viola Matlhare

Education Officer: Accreditations

Engineering Council of South Africa

Waterview Corner Building, 2 Ernest Oppenheimer Avenue, Bruma Lake Office Park, Bruma, 2198, Johannesburg

Tel/Direct: +27 (0)11 607 9500 | Fax: +27 (0)11 622 9295

viola@ecsa.co.za | www.ecsa.co.za

From: Chris Stuurman (CP) [<mailto:StuurmCP@telkom.co.za>]

Sent: 02 May 2013 12:40

To: Viola Matlhare

Cc: 'Hugh Jeffery'; Faroon Goolam

Subject: RE: URGENT REQUEST: TPAC meeting 29 April 2013

Dear Viola,

I am ok with the teams.

Please include an explanation with the request to the teams indicating what is expected from them.

Kind Regards,

Chris

From: Viola Matlhare [<mailto:viola@ecsa.co.za>]

Sent: 30 April 2013 03:55 PM

To: Chris Stuurman (CP)

Cc: 'Hugh Jeffery'; Faroon Goolam

Subject: FW: URGENT REQUEST: TPAC meeting 29 April 2013

Importance: High

Dear Mr Stuurman,

TUT has requested endorsement from ECSA for new programmes. The ECSA template has been completed for each new programmes and is attached for your perusal. Kindly review the lists below before we send the corresponding programme to each of the teams.

Electrical Eng:

Mr R Harker raharker@telkomsa.net
Prof H Vermaak hvermaak@cut.ac.za
Mr R Evert Rudolph.evert@lebohang.com

Industrial Eng:

Mr A Naicker naickera@dut.ac.za
Dr K van der Merwe karl.vandermerwe@nmmu.ac.za

Mechanical & Mechatronics Eng:

Ms E Zawilska ewa@mut.ac.za
Dr K Jacobs jacobki@unisa.ac.za
Prof H Jeffery hughjeffery@telkomsa.net

Metallurgy Eng:

Prof F Waanders frans.waanders@nwu.ac.za
Dr K Nyembwe dnyembwe@uj.ac.za

Chemical Eng:

Mr S Ramsuroop ramsuros@dut.ac.za
Dr W Bernhardt bernhardtwl@gmail.com

Civil Eng:

Dr T Haas trevor@sun.ac.za
Mr T Mckune tom@dut.ac.za

MS Viola Mathhare

Education Officer: Accreditations

Engineering Council of South Africa

Waterview Corner Building, 2 Ernest Oppenheimer Avenue, Bruma Lake Office Park, Bruma, 2198, Johannesburg

Tel/Direct: +27 (0)11 607 9500 | Fax: +27 (0)11 622 9295

viola@ecsas.co.za | www.ecsas.co.za

From: Ben van Wyk [<mailto:VanWykB@tut.ac.za>]

Sent: 29 April 2013 07:13

To: Faroon Goolam; Viola Mathhare

Cc: Chris Stuurman (CP); Hugh Jeffery

Subject: URGENT REQUEST: TPAC meeting 29 April 2013

Importance: High

Dear Faroon / Hugh / Chris / Viola

I want to humbly ask if it will be possible to add the attached BEngTech & BEngTechHons requests for endorsement to the agenda as additional/late items since I will be present today to be explain the detail and be 'interrogated' by TPAC members ? It seems like a lot of documents, but in reality all the BEngTech requests are the same except for one section dealing with the proposed curriculum.

My diary is quite full and I'm afraid that an opportunity like today might not present itself in the near future.

Kind regards

Ben

Barend J van Wyk [PhD, PrEng, MIEEEE, MIAPR]
Executive Dean *and* R&I Professor
Faculty of Engineering and the Built Environment
Tshwane University of Technology
Building 3, Floor 6
Tel + 27 12 382 5328
Fax + 27 12 382 4108



From: Faroon Goolam [<mailto:faroon@ecsa.co.za>]
Sent: 12 April 2013 05:06 PM
To: Ben van Wyk; Viola Matlhare
Cc: Chris Stuurman (CP); Hugh Jeffery
Subject: RE: Presentation to TPAC meeting 29 April 2013

Thanks much Ben

Regards,
Faroon

Dr Faroon Goolam

Executive : Statutory Functions
Engineering Council of South Africa
Waterview Corner Building, 2 Ernest Oppenheimer Avenue, Bruma Lake Office Park, Bruma,
2198, Johannesburg
Tel/Direct: +27 (0)11 607 9513 | Fax: +27 (0)86 267 5083
faroon@ecsa.co.za | www.ecsa.co.za

From: Ben van Wyk [<mailto:VanWykB@tut.ac.za>]
Sent: 12 April 2013 05:02 PM
To: Viola Matlhare
Cc: Faroon Goolam; Chris Stuurman (CP); Hugh Jeffery
Subject: Re: Presentation to TPAC meeting 29 April 2013

I'm available on the 29th.

Kind regards

Barend J van Wyk [PhD, MIEEEE, MIAPR]
Executive Dean and R&I Professor
Tshwane University of Technology
Faculty of Engineering and the Built Environment
Pretoria West Campus, Bld 3, Floor 6
Tel +2712 382 5328 Fax +2712 382 4108

On 12 Apr 2013, at 3:45 PM, "Viola Matlhare" <viola@ecsa.co.za> wrote:

Dear Prof van Wyk,

Please note that you are invited to attend the TPAC meeting on 29 April 2013, 09:00 at ECSA offices to present on the HEQSF document, Kindly advise at your earliest convenience on your availability for necessary arrangements to be made.

MS Viola Matlhare

Education Officer: Accreditations

Engineering Council of South Africa

Waterview Corner Building, 2 Ernest Oppenheimer Avenue, Bruma Lake Office Park, Bruma, 2198, Johannesburg

Tel/Direct: +27 (0)11 607 9500 | Fax: +27 (0)11 622 9295

viola@ecsa.co.za | www.ecsa.co.za

From: Viola Matlhare [<mailto:viola@ecsa.co.za>]

Sent: 19 June 2013 02:45 PM

To: 'Chris Stuurman (CP)'; hughjeffery@telkomsa.net

Cc: 'Jones Moloisane'; 'ckwezi@mweb.co.za'; 'Chris Ackerman'; 'Jonas Tshikundamalema'; Thomas William Mckune; trevor@sun.ac.za; 'Dhiren Allopi'; Suresh Ramsuroop; 'Chamane, Zipathele'; Wolf Bernhardt; bernhardtw@telkomsa.net; Els, Raymond, Dr <rels@sun.ac.za>; 'Ferie Samadi'; Frans Waanders; Maphumulo, Sinothi (SD); 'Vermaak Herman'; 'TC Madikane'; 'terry'; Schoombie, Sarel (Mr) (Summerstrand Campus North); 'kantilal ramjee'; 'Rod Harker'; Humbulani Mutasah; Grebe, Fanus (Mr) (Summerstrand Campus North); 'Andrew Kisten Naicker'; van der Merwe, Karl (Dr) (Summerstrand Campus North); Brian French; D Argyrakis; 'Mr PS Moncur'; 'Ionescu, Dorina'; 'A du Plessis'; Moloj, Lehasa; Zawilska, Ewa; van Niekerk, Theo (Prof) (Summerstrand Campus North); du Plooy, Dennis; 'Onkgopotse Lord Leburu'

Subject: FW: CPUT Assessors

Dear CPUT Assessors

Please see the attached Quality Improvement Plan from CPUT for your comments, please forward your comments to me by Monday, 24 June 2013 before the end of the business day.

Kindly advise if whether during the visit would be upon the deficiencies and concerns raised and/ or also do the university have to the arrange the following:

- the visits to the library, exams office, etc.
- Arrange students, IST, employer and staff interviews, etc.

MS Viola Matlhare

Education Officer: Accreditations

Engineering Council of South Africa

Waterview Corner Building, 2 Ernest Oppenheimer Avenue, Bruma Lake Office Park, Bruma, 2198, Johannesburg

Tel/Direct: +27 (0)11 607 9500 | Fax: +27 (0)11 622 9295

From: Viola Matlhare [<mailto:viola@ecsa.co.za>]

Sent: 19 June 2013 09:25 AM

To: 'Rod Harker'; 'Vermaak Herman'; rudolph.evert@lebohang.com; 'Andrew Kisten Naicker'; van der Merwe, Karl (Dr) (Summerstrand Campus North); Zawilska, Ewa; 'Jacobs, Keith'; hughjeffery@telkomsa.net; Frans Waanders; 'Nyembwe, Didier'; Suresh Ramsuroop; Wolf Bernhardt; trevor@sun.ac.za; Thomas William Mckune; Faroon Goolam

Subject: RE: Unversity of Johannesburg Evaluation of the new programmes

Dear TPAC members,

Kindly note that I am still awaiting for your comments wrt the UJ new programmes in order we can be able to finalize the letter of endorsement, may I request that your comments reach the office by Thursday 20 June 2013 before the end of the business day.

MS Viola Matlhare

Education Officer: Accreditations

Engineering Council of South Africa

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viola@ecsa.co.za | www.ecsa.co.za

ACTIVITY 1.2	Establishing and improving professional or academic standards within a profession or discipline.
Participants: ✓ Dr A Lourens ✓ Dr K Van Der Merwe ✓ Mr A Louw ✓ Mr A Murray ✓ J Snyders ✓ Mr C Joubert	<p>The department of Industrial Engineering functioning as a coherent group under the leadership of Dr Ann Lourens has established and maintained over years the convener ship for Industrial Engineering for Universities of Technology and Comprehensive Universities. The input to this convener ship is bolstered by Industry inputs from the departmental Advisory board.</p> <p>The department recently hosted a very well attended conveyor meeting to engage with other universities w.r.t. the implications of the new HEQSF and options for the way forward</p>

Criteria 1: The impact and significance of the engagement activity.

Convenership within a discipline in a HEI environment ensures that continuous academic development and peer evaluation is facilitated. Regular convener meetings allows the sharing of teaching and learning as well as research best practices within the HEI environment, resulting in a continuous development of all attending universities and especially that of previously disadvantaged universities. Through these activities NMMU has furthered its Vision and Mission as it has been firmly established as a leader in the field of Industrial Engineering

Criteria 2: The intellectual endeavors contributed by the engagement activity.

As a convener for high level academic discourse it is incumbent for the convener to be well prepared and to lead discussions where required. This requires that the convener is well informed and is empowered to play a leading role in futuristic academic decision making involving curricula, teaching and learning as well as assessment strategies.

Criteria 3: Communication and dissemination of knowledge and expertise.

The outputs of convener meetings are distilled into firm decisions which shape future curricula and teaching and learning as well as research processes. The information is disseminated to all UOT's and CUT's. In many cases interventions w.r.t T,L&R processes are implemented and or curricula and assessments are refined

Criteria 4: The strategic importance of the role performed by the individual/team.

As NMMU is situated in a predominantly manufacturing environment having to cope in a very

competitive global market, it is essential that they play a leading role in academia and in industry w.r.t the development and presentation of courses which significantly impact on economic feasibility and profitability to ensure sustained employment opportunities and regional development opportunities.

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

The Industrial Engineering team from NMMU has firmly entrenched NMMU as a leader in the field as far as Industrial Engineering is concerned. Their status has been recognized on a worldwide basis and prominent international manufacturers acknowledge the department as the global Teaching and Learning provider of choice.

During a recent visit to the highly regarded newly established Manufacturing centre of the Mississippi University and the very highly reputed Georgia Institute of Technology in America where discussions were held and presentations made, their acknowledgement of NMMU's academic status and integrity in this discipline was very clear .

Criteria 6: The integration of engagement into the core academic functions.

Regular engagement with other universities ensures that academic programme structures and module content is maintained at the required international and local standards. Innovative teaching and learning strategies are explored and action research w.r.t the effectiveness of interventions such as the Women in Engineering Leadership Association (Wela), the early identification of students at risk and the mentorship programme are implemented and shared with fellow local, national and international colleagues.

Contacts:

Gerhard de Clercq (DeClercqG@tut.ac.za)
Office 012 3824206
Cell 0833 2468 93

Mississippi = Prof Alex Cheng
Dean, School of Engineering
Phone (662) 915-7407
Email aching@olemiss.edu

Georgia Ins Tech = Ms Valarie Durant-Modeste
H Milton Stewart School
Atlanta
Phone 404.894.8405
Email vrd@isye.gatech.edu

EXHIBITS

The exhibits below shows communication relating to the convener meeting called and hosted by Vaal University of Technology

2nd ANNUAL CONVENOR MEETING FOR INDUSTRIAL ENGINEERS

SCHEDULE 25 April 2013 (Day 1)

09:00 - 09:15	Morning - Tea/Coffee/Fresh Juice and Biscuits
09:15 – 09:30	Welcome (Executive Dean of Engineering: Prof M Ndege)
09:30 – 10:00	Confirmation of previous meeting minutes
10:00 – 10:15	Mid-Morning - Tea/Coffee/Fresh Juice and Refreshments
10:15 – 12:00	Presentations – HEQF
	Proposed New Industrial Engineering qualifications and PQM from different institutions
10:00 – 10:15	TUT Presentation
10:15 – 10:30	VUT Presentation
10:30 – 10:45	UJ Presentation
10:45 – 11:00	CPUT Presentation
11:00- 11:15	UNISA Presentation
11:15 – 11:30	NMMU Presentation
11:45 – 12:00	DUT Presentation
12:00- 13:00	Lunch
13:00 – 15:30	Workshop to find synergies amongst Universities and form collaboration partners for developing and offering new programs.
15:30 – 15:45	Mid-Afternoon - Tea/Coffee/Fresh Juice
15:45 – 16:15	Travel to Stonehaven on Vaal
16:30 – 19: 30	4 Course Dinner Cruise on “The Royal Stonehaven”

ACTIVITY 1.3	Participating in an elected or appointed capacity in the governance of a department/school/faculty or at the institutional level.
Participants: ✓ Dr A Lourens ✓ Dr K Van Der Merwe	<p>Dr Ann Lourens was recently appointed to her 3rd term as Head of Department: Industrial Engineering. This bears clear testimony of her abilities to not only manage her department but also of her excellent engagement with industry and the confidence that industry and peers have in the department as an engaged team that always ensures that NMMU Industrial Engineering is considered the preferred choice for study and personal development.</p> <p>Dr Ann Lourens, through her participation at the Engineering School Management(SMC) committee, over and above her formal duties, contributes significantly to the understanding of the academic demands of local and international Industry for both formal academic as well as Short learning programmes. Under her leadership the department also won the Teaching and Learning Team Award.</p> <p>Dr Karl Van Der Merwe is representing the Faculty of Engineering, the Built Environment and Information Technology at the REC-H Ethics committee. Representing the faculty in the Ethics committee is of extreme importance as a significant component of research done in the faculty is of a nature that requires ethical clearance and could have far reaching consequences if not correctly dealt with.</p>

Criteria 1: The impact and significance of the engagement activity.

Service to the university through engagement in departmental/school/faculty committees as well as at institutional level is of cardinal importance to the wellbeing of the university by ensuring that teaching and learning as well as research processes are well and efficiently performed at excellent academic standards. Institutional status and perception of stature is fundamental in attracting the required caliber of students and the acceptance of these students in the job market and at other national and international institutions.

Executing these functions with excellent team dynamics and support adds real benefit and further also ensures human resource wellness with its associated improvement of job satisfaction and performance levels

Criteria 2: The intellectual endeavors contributed by the engagement activity.

Engagement via institutional service requires a thorough understanding of the greater task. Effective departmental leadership is a clear indication of the required institutional memory and intellectual property. Their effective intellectual engagement further facilitates the efficient running of a department which have achieved national and international acknowledgement w.r.t their academic offerings

Criteria 3: Communication and dissemination of knowledge and expertise.

As HOD in her 3rd second hat appointment Dr Lourens and her team has demonstrated effective horizontal and vertical communication both internally and with their external partners which resulted in a firm establishment of the department of Industrial engineering in the HEI and industrial environment.

Criteria 4: The strategic importance of the role performed by the individual/team.

The level of responsibility of HOD in a discipline that contributes significantly to the production efficiency of the manufacturing environment is very high as especially the automotive manufacturing environment is extremely competitive in the international arena. The manufacturing industry relies heavily on the support of the university and the fact that international accolades and contracts have been forthcoming is a clear indication of the strategic importance for the department as well as NMMU i.t.o the establishment of its international academic status. The role played by Dr Van Der Merwe as the faculty representative at the Ethics committee ensures that NMMU in all its endeavours and that of its students are professional.

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

The engagement activities of the department of Industrial Engineering and manifested by the actions of the HOD is readily acknowledged in educational circles as well as in industry. Both local and international industry recognizes the bona fides of the department. In 2012, the Department received the "Teaching and Leadership team award" under the leadership of Dr Lourens. The feedback provided in the "exhibits" is evidence of how the Department is acknowledged and recognized by industry role players.

Criteria 6: The integration of engagement into the core academic functions.

Departmental meetings under the chairpersonship of Dr Lourens regularly considers intelligence gained from engagement activities and marginally adjust their formal academic offerings as well as short learning programmes to address the needs of industry. Research conducted is very relevant to industry and the doctorate recently completed by Dr Van Der Merwe addressed key issues w.r.t Lean Management principles as a corporate culture to enhance industrial competitive edge. The findings hereof was also very well received and appreciated by the Manufacturing Centre of the University of Mississippi.

Contacts

1. Santa Van Rooyen
2. veliswa.dom@froetek.com
3. Abongile Ngejane
4. Ronelle Plaatjes
5. Le-rita.Barnardo@transnet.net
6. Themba.Gcukumana@transnet.net

EXHIBITS

The exhibit below illustrates the Department's standing within the industry

From: Van Rooyen, Santa (Ms) (Summerstrand Campus North)
Sent: Monday, March 10, 2014 11:50 AM
To: Kolesky, Zandra (Ms) (Summerstrand North Campus)
Subject: RE: WELA - 7 Choices of Successful Women - Thursday, 6 March 2014

Zandra

Thank you for organising a brilliant workshop! WELL DONE!!
I feel inspired and motivated to pursue what I have learned there.
Have a great week!

Kind regards

Santa

Santa van Rooyen
Laboratory Technician
Tel: +27 (0)415043462
Fax: +27 (0)415049462



Nelson Mandela
Metropolitan
University

Dear Mr Murray

I would like to pass my gratitude to you for the reference letter you completed for me. I really appreciate what you did to me even for the brighter future Industrial Engineering department did for us. I really enjoy my job because whatever you taught us turns to be realistic now and we are still in the process of implementing Kaizen in our companies. Can you please pass my gratitude also to other Industrial Engineering lecturers we really appreciate you all.

Best regards

Veliswa Dom

Quality Manager

FROETEK South Africa (Pty) Ltd.

Phone: +27 (0) 43 7000 805

Fax : +27 (0) 43 7366 471

eMail: veliswa.dom@froetek.com



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Phone:

+27 (0) 43 7000 800

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+27 (0) 43 7366 471

E-Mail:

info@froetek.co.za

General Manager:
Werner Bendisch

Reg. No. 2006/021794/07
VAT No. 4390237032
Income Tax No. 931102165

From: Ngejane, Abongile (Miss) (s213227770)

Sent: 28 October 2013 10:54 AM

To: Plaatjes, Ronelle (Ms) (Summerstrand Campus North)

Subject: FEEDBACK ABOUT OUR LAST SESSION AND EXAM TIPS

Morning Ms Ronelle

I would like to thank you for helping me with a study time table as I got 74% in my last IQT test, which is a great improvement from the 32% I got. I would like to set an appointment again to help me with an exam study time table.

Regards,

Abongile Ngejane (213227770)

Sent from Windows Mail

From: Le-rita Barnardo Transnet Engineering UTH [mailto:Le-rita.Barnardo@transnet.net]
Sent: Tuesday, April 16, 2013 9:02 PM
To: Lourens, Ann (Dr) (Summerstrand Campus North)
Subject: RE:
Dear Dr Lourens

As I am preparing for my presentation tomorrow with the Pula Consultants, and Marketing our New Market Demand Strategy overview,

One thing came to mind.....

Funny though but – I really need to do my B-tech J
I have learned so many things, and have felt the disappointment of wasting Time ,Money and Petrol LOL.

I am tooooooooooooooooooooo excited for the graduation! Yeahhhhhhhhhhhhh

Many thanks for you Doc, you are really considerate, assertive, strong women.

And one day, in the next 3 years still, I'll be just like you.

Miss confidentiality!!
L-Rita Barnado
Customer Services Manager
Wagons
Transnet Rail Engineering

From: Themba Gcukumana Transnet Freight Rail PLZ [mailto:Themba.Gcukumana@transnet.net]
Sent: 03 April 2013 08:30 AM
To: van der Merwe, Karl (Dr) (Summerstrand Campus North)
Subject: Good morning Sir

Good morning Karl,

I was thinking of you yesterday and I thought I should drop you an email. I would to thank you of the great job you doing there and the things you taught me. I was not one of the best students but that desire of wanting to learn kept me going. I must say that you're a great inspiration.

I'm in Johannesburg and working for Transnet Freight Rail as an Engineering Technician. I'm at the head office in Parktown, I work for Service Design department as a train service designer. I deal with centralized planning, development and implementation of train services, by translating business and client requirements into economical and executable operational solutions and specifications to satisfy client requirements and thereby ensuring growth and profitability for Transnet Freight rail.

In a short term I'm more exposed to mines and the commodities that we as Transnet Freight Rail moves. Not forgetting the power stations and the ports that we send these commodities to.

Here is an attachment of some of the Service Design I have done and implemented:

- Market Template (it's like a job card of what a customer wants to run and all the specifications are in this template)
- Service Design (that's what I do and I send it out to all the relevant role players for them to approve it or decline it)
- Implementation Notice (if the Service Design has been approved I implement it to all the role players)
- Photo of me (just in case you don't know me)

I was just trying to show you some of the things I do here at Transnet Freight Rail.

Regards,
Themba Gcukumana



ACTIVITY 1.4	Contributing to the strengthening of the core functions of the department/ school/faculty and University (e.g. programme marketing, student orientation etc).
Participants: ✓ Dr A Lourens ✓ Dr K Van Der Merwe ✓ Mr A Louw ✓ Mr A Murray ✓ J Snyders ✓ Mr C Joubert	<p>The department of Industrial Engineering as a team is very active in strengthening the core functions of NMMU. They fully participate in all marketing and orientation programmes, regularly lead, and set examples for building NMMU corporate branding and team spirit.</p> <p>Their active support and successful promotion for Women in Engineering under the auspices of the multidisciplinary Women in Engineering Leadership Association (Wela) sets both national and international exemplars for activities to improve support and promotion of female students in an engineering discipline. Regular meetings with fellow colleagues at other HEI institutes and research outputs explore success and failures and disseminate knowledge.</p>

Criteria 1: The impact and significance of the engagement activity.

Although Industrial Engineering plays a predominant role in the production efficiency of manufacturing plant and such graduates are highly sought after, it is often not an obvious choice for learners as the media in general focuses more on Civil, Electrical and Mechanical Engineering. The department therefore spends large amounts of time to establish Industrial Engineering as a career as well as NMMU as the preferred provider for teaching and learning in that field. All Open day functions are supported as well as many school and industry visits. This is of utmost importance to ensure economic viability and critical mass to further support the development of teaching and learning as well as research in this field.

Student orientation is of vital importance to the successful integration of students into the NMMU academic and social environment. The department is actively represented at the NMMU orientation committee and ensures that their orientation programme is relevant and supportive. The department also has an open door approach and students are encouraged to interact with the academics and support staff. The departments further involve students in extra mural sport competitions that add value i.t.o building firm relations and NMMU Alumni.

Criteria 2: The intellectual endeavors contributed by the engagement activity.

To effectively build a corporate image and market formal and short learning programmes it is essential that a good understanding exist w.r.t. the specific discipline and its needs within the industry. It further requires and understanding of solid marketing skills relevant to the target market.

Criteria 3: Communication and dissemination of knowledge and expertise.

The Faculty and School have a marketing and student orientation meetings at which the need of NMMU and the students are discussed. Interventions are planned and shared with colleagues and

budgets are considered to implement the best possible plan within the financial constraints. Knowledgeable colleagues from support departments inform these meetings. Regular feedback meetings close the loop and where required corrective actions are planned for.

Criteria 4: The strategic importance of the role performed by the individual/team.

Being able to attract suitably qualified students is of extreme importance as it is incumbent on NMMU to assert their status as academic preferred provider in the region and also to grow their status on the national and international market. Effective orientation further leads to student (customer) satisfaction in initial processes which to a large extent affects the student's experience and academic performance.

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

Other departments that in many cases support and follow the activities in their own departments acknowledge the leadership taken by the department of Industrial Engineering. The acceptance of Industrial Engineering as a career is firmly being entrenched with growing support from industry.

Criteria 6: The integration of engagement into the core academic functions.

The efficiency especially in the first year of teaching and learning process is significantly improved with effective orientation. First year teaching and learning challenges are often due to ineffective orientation, and therefore there are many benefits such as improved pass rates etc for successful interventions.

Contacts

Zandra Kolesky
Roslyn Baatjies
Farren Foutie
Debbie Derry
Alison Kingma

EXHIBITS

The exhibit below indicates the Department's support of locally organised activities and marketing events as well as the camaraderie held amongst staff and students.







Nelson Mandela
Metropolitan
University
for tomorrow

Industrial Engineering

We Engineer Business, Leaner Better Faster



Observe & Understand



Measure



Innovate



Design



Improve



Implement

- Am I interested in math and science?
- Am I interested in business and how various industries operate?
- Do I want a career that involves problem-solving and decision-making?
- Do I want a career that helps people and the economy save money, time and resources?

If you answered "yes" to these questions, then Industrial Engineering is your future! Work hard, earn your degree, and enter a great career!

66 I think engineering is a great career choice because it is a well-paying profession that offers many opportunities for growth and advancement. I am interested in the challenges of the profession and the fact that I can make a difference in the world.

66 The industrial engineer is a great profession because it is a well-paying profession that offers many opportunities for growth and advancement. I am interested in the challenges of the profession and the fact that I can make a difference in the world.

66 The industrial engineer is a great profession because it is a well-paying profession that offers many opportunities for growth and advancement. I am interested in the challenges of the profession and the fact that I can make a difference in the world.

66 I really enjoyed studying at NMMU. The university provided a great learning environment and the staff were very helpful. I am interested in the challenges of the profession and the fact that I can make a difference in the world.



Asha Ndlovu
BSc in Industrial Engineering
Specializing in Quality Management
and Safety



Mandisa Mkhomo
BSc in Industrial Engineering
Specializing in Quality Management
and Safety



Mandisa Mkhomo
BSc in Industrial Engineering
Specializing in Quality Management
and Safety



Siboniso Mkhomo
BSc in Industrial Engineering
Specializing in Quality Management
and Safety

Contact: tel (041) 504 3645 • fax (041) 504 9645 • www.nmmu.ac.za/induseng

wela
Women in Engineering Leadership Association

Faculty of Engineering, the Built Environment and Information Technology

Empowering young female engineering students at NMMU.
wela wants to help you...

- develop and grow as a woman in engineering
- personally develop in your career
- serve the community
- understand the importance of women in engineering

Supported by **merSETA**

Contact Nicole Truter • Project Coordinator
School of Engineering, NMMU North Campus
Tel: +27 (0)41 504 3137 • Fax: +27 (0)41 504 9137

www.nmmu.ac.za

WELA poster

Nelson Mandela Metropolitan University
for tomorrow

Industrial Engineering

Faculty of Engineering, the Built Environment and Information Technology

If you have a flair for problem solving and doing a job in the most efficient way possible, then Industrial Engineering is a profession you should consider. Industrial engineers learn how to harness the use of a diverse range of resources such as people, technology and mechanics in a configuration that will achieve the optimum results.

Careers

- Project planning
- Production/Operations
- Manufacturing
- Services
- Quality management
- Logistics
- Lean Specialist
- Warehousing
- Supply Chain management

At NMMU the diploma in industrial engineering is a popular three year course that will equip you with the necessary skills and experience to assist any organisation to perform its operations in the safest, fastest and most cost effective manner.

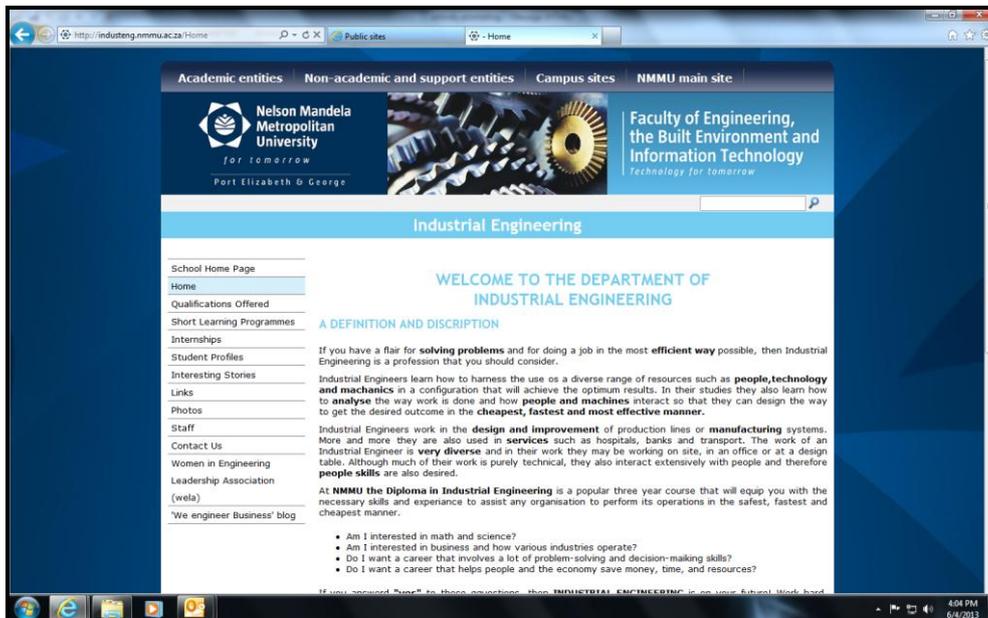
Contact Industrial Engineering on tel: 041 504 3446 / 3447 or email: charlie.locke@nmmu.ac.za

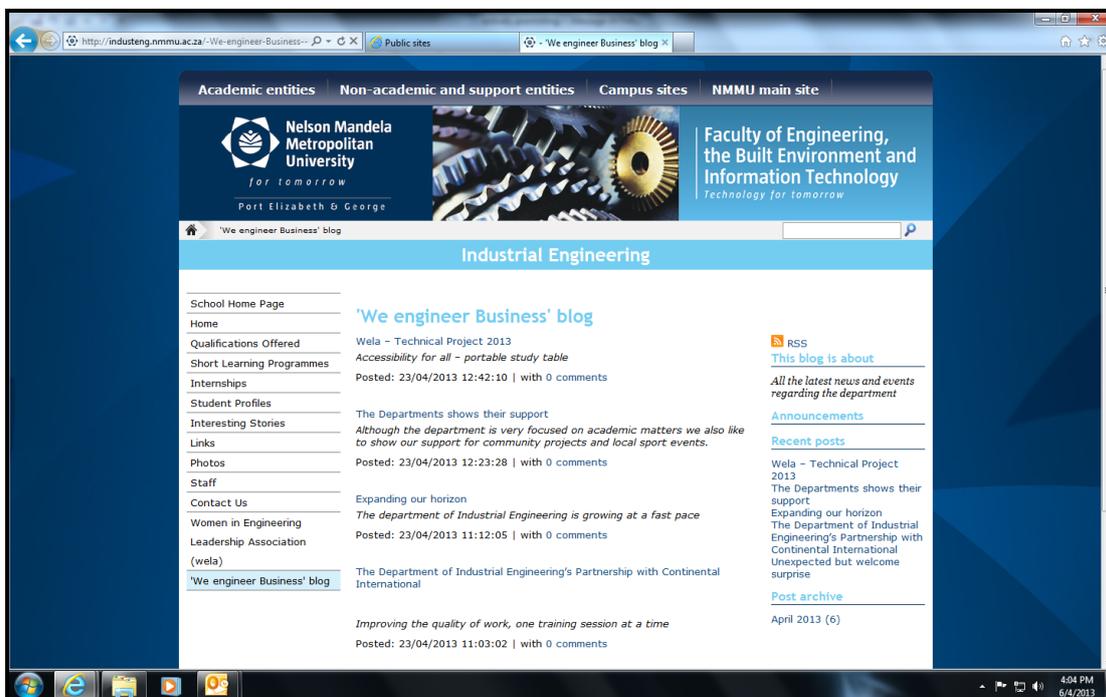
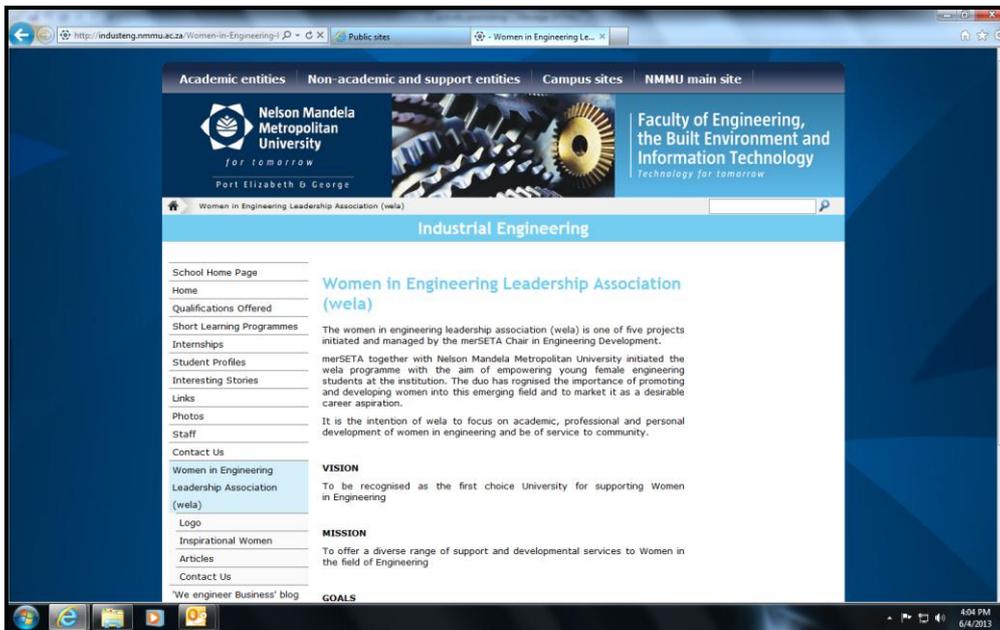
www.nmmu.ac.za/engineering

Industrial Engineering marketing poster

INDUSTRIAL ENGINEERING MARKETING EVENTS:

- Posters and information packs to Schools
- Pearson open day
- Grey open day
- NMMU Open day
- Presentation to participants of Engineering Week (Jaco, Cobus)
- Presentation to STEM participants (Jaco, Cobus)
- Presentation to Engineering Foundation students (Jaco, Cobus)
- Advertisements in school magazines: Pearson, Westering, Alex, Framesby
- Industrial engineering information packs to schools
- SAWomENG conference
- Automotive week
- Marketing packs handed out at Continental International and NMMU MOU signing ceremony
- Send out advertisement about short courses via email
- Send out advertisement about short courses via Communiqué





http://industeng.nmmu.ac.za/Short-Learning-Programme... Public sites Short Learning Programmes

University for tomorrow Port Elizabeth & George

the Built Environment and Information Technology Technology for tomorrow

Short Learning Programmes

Industrial Engineering

School Home Page
Home
Qualifications Offered
Short Learning Programmes
Documentation
Internships
Student Profiles
Interesting Stories
Links
Photos
Staff
Contact Us
Women in Engineering Leadership Association (wela)
'We engineer Business' blog

Short Learning Programmes

The Department of Industrial Engineering at the Nelson Mandela Metropolitan University will be presenting the following Short Learning Programme in 2013:

COURSE NAME	DATES	COST
Introduction to Operations Management	2 March – 29 June or 20 July – 19 October	R 9 500
Project Management for Manufacturing	13 March – 22 May or 7 August – 9 October	R 4 400
Value Stream Mapping	6 & 13 June or 3 & 10 October	R 2 500
FMEA	10 June or 7 October	R 1 800
Lean Practitioners Programme for Manufacturing	12 March – 14 May or 6 August – 15 October	R 6 500
Lean Practitioners	22 – 24 May	R 6 800

4:06 PM 6/4/2013

http://www.facebook.com/pages/wela-NMMU-merSET... NMMU Staff Portal - Home (wela) NMMU / merSETA W...

facebook Search for people, places and things (wela) NMMU / merSETA Wo... Home

wela Women in Engineering Leadership Association

Nelson Mandela Metropolitan University for tomorrow

(wela) NMMU / merSETA Women in Engineering Leadership Association
66 likes · 2 talking about this

University
Wela was created with the sole purpose of showing women that Engineering is not just a male dominated field but that women can also excel in it. Wela is multi cultural and

About Photos Likes Events Notes 16

2012 wela activities
Bronze passport membersLaunchStu counselling develop

See Your Ad Here
(wela) NMMU / merSETA Women in Engineering Leadership Association
Wela was created with the sole purpose of showing women that Engineering is not just a male dominated...
Like · (wela) NMMU / merSETA Women in Engineering Leadership Association likes this.
Get More Likes

Recent Posts by Others See All

Sibulele Ngumbela
I need help,so this room its for women only?
May 14 at 7:20pm

Company Registration -SWC
Our company registration services for just R599! - Your c...
April 15 at 12:36pm

Sphe Malgas
Hi WELA! I am looking for 5 students from the Faculty of E...
March 25 at 11:35pm

4:32 PM 6/4/2013

ACTIVITY 1.5	Representing the University on external committees, task teams or in public forum
Participants: ✓ Dr K Van Der Merwe	Due to his expertise in Lean Manufacturing, Dr Karl Van Der Merwe has been appointed as an advisor to Umicore Catalyst SA in Lean Implementation and as an advisor in the official Problem Solving Team (PST)

Criteria 1: The impact and significance of the engagement activity.

Volkswagen South Africa is a leading automotive manufacturer in South Africa and the largest manufacturer in the Eastern Cape. The continued competitive edge of VWSA is closely linked to their manufacturing efficiency when compared on the international market. In the current economic times, it is therefore even more important to ensure economic viability in comparison to the mother plant in Germany and other international competitive plants.

VWSA provides employment and income to many Eastern Cape citizens and it is therefore incumbent to ensure that NMMU facilitates the required academic support to ensure continued growth and economic viability. Lean manufacturing is the key to efficient manufacturing processes and Dr Karl Van Der Merwe provides excellent support in that regard

Criteria 2: The intellectual endeavors contributed by the engagement activity.

Serving as an advisor adds value i.t.o intellectual benefits to both parties. The person providing advice is enriched by the additional case studies/issues and in so doing expands his/her horizons of knowledge and experience. The parties receiving the advice obviously gain benefit by implementing the recommended interventions and by so doing improve the viability of their plants. The intervention results and conclusions over time builds the intellectual capacity of all parties and the status of the institute, in this case NMMU is advanced

Criteria 3: Communication and dissemination of knowledge and expertise.

Advisory activities follow both informal and formal avenues. In most informal avenues, regular visit with meetings and discussions are par for the course. Formal advisory functions however are well documented, exploring in detail the issues/challenges at hand, a detailed study with data gathering may follow and then only documented advice is given. Depending on agreements, such case studies may or may not be discussed with fellow colleagues or students.

Criteria 4: The strategic importance of the role performed by the individual/team.

A university such as NMMU should via its esteemed colleagues be able to give advisory support to industry. This is the core of the continued existence and well-being of a university. It establishes stature and facilitates the advantage of funding for research infrastructure, student bursaries, student projects etc.

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

The leadership of Dr Van Der Merwe in the field of Lean Manufacturing is widely acknowledged in the department, the School and the Faculty as well as in Industry. The external acknowledgement is clearly evident in the variety and nature of Short learning programmes that he has been requested to present on the topic

Criteria 6: The integration of engagement into the core academic functions.

Experience gained when operating as an advisor facilitate the developing of course material containing valuable case studies and examples of how the theory can and should be applied and therefore enriches the learning experience of all students with the consequent results that manufacturing processes in future will be more effectively designed and managed.

Contacts

Michelle Sha
Manufacturing Operating Systems Coordinator
Umicore Catalyst SA (Pty) Ltd
Direct Line: +27 41 4017421
E-mail: michelle.sha@umicore.com

EXHIBITS

The exhibits below indicate communication regarding SLP's.

From: Sha, Michelle [<mailto:Michelle.Sha@eu.umicore.com>]
Sent: 23 August 2013 09:02 AM
To: van der Merwe, Karl (Dr) (Summerstrand Campus North)
Subject: PDCA - Scheduling

Good morning Karl

Hope you are well, just want to ask you a question...we are currently busy with the big "Scheduling problem" Chris has started to have a few meetings on this and would like to use the PDCA as is in our booklet to try and solve this problem. We would just like to get your opinion on this, would this be the right approach for us? We would also like to meet with you sometime soon so he can discuss task given to him by our MD and how to address some of the items on his list....(all linked to scheduling).
When would you be available?

Please let me know.

Regards
Michelle Sha

ACTIVITY 1.6	The provision of discipline-informed expert opinion to internal/ external stakeholders
Participants: ✓ Dr K Van Der Merwe	<p>Dr Karl Van Der Merwe is involved with the Automotive Industries Development Corporation (AIDC) Total Production Management (TPM) programme. TPM is a very effective management programme to enhance operational efficiency of production plants.</p> <p>The AIDC have secured their first cluster in South Africa for the TPM programme as well as some funding from government for the cluster in terms of resources, training material and international TPM accredited training. They have forged strong bonds with the Indian Confederation of Industries. Dr Van Der Merwe has also been guest speaker at industry related Problem solving seminars</p>

Manufacturing Operating Systems Technician
Umicore Catalyst SA (Pty) Ltd
Direct Line: +27 41 4017421
E-mail: michelle.sha@eu.unicore.com

Criteria 1: The impact and significance of the engagement activity.

Being involved with the highly responsible task of providing expert opinion in matters that significantly impacts on the production efficiency and competitive edge of multimillion rand operations, requires the incumbent to ensure that he is au fait with current advanced and futuristic manufacturing processes. Over and above the obvious benefits to the students it also develops NMMU's academic stature which is conducive to expand international collaboration, funding opportunities and further research and post graduate activities.

Criteria 2: The intellectual endeavors contributed by the engagement activity.

The provision of expert opinion carries with it a large amount of risk. The associated risk ensures that the expert at all times must have read widely and investigated in detail to be well prepared for the task at hand. In the fast moving technology and very competitive market of manufacturing there is significant intellectual rigour to minimize expert opinion associated risk

Criteria 3: Communication and dissemination of knowledge and expertise.

Expert opinion in general is directly communicated via verbal or written communication to the requesting parties. The knowledge in some cases is shared via workshops and or Seminars. The expertise or knowledge gained however is entrenched in the development of learning and assessment material and to fellow academics during subject matter and convener meetings. Intellectual property rights should always be observed.

Criteria 4: The strategic importance of the role performed by the individual/team

Universities fulfill fundamental roles in stimulating national and regional development. They therefore need academic stature and must be able to contribute intellectually to such development.

To ensure the achievement of NMMU's 2020 Vision, it is of cardinal importance that academics are recognized as expert within their respective disciplines. Acceptance by industry and commerce of the university as a valuable strategic development partner will further facilitate funding opportunities to enhance infrastructure and other required resources.

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

The engagement with industry of the Department of Industrial Engineering has grown tremendously during recent years. Various companies/corporations have recognized the expert knowledge available within the department on various issues. The fact that the AIDC as a development corporation recognized the expertise and is using it to develop local companies is a complement to the department and Dr Van Der Merwe.

Criteria 6: The integration of engagement into the core academic functions.

Over and above the expert discipline knowledge developed and shared with students, the professional conduct required associated with expert advice/consultancy is also honed and transferred to the students to ensure the graduate attributes required by industry

Contacts

Zahier Ebrahim
Senior Product Manager
AIDC
041 393 2132

EXHIBITS

The exhibits below indicate communication with external stakeholders regarding the provision of expert opinion.

From: ZEbrahim@aidcec.co.za [mailto:ZEbrahim@aidcec.co.za]

Sent: 02 August 2013 02:42 PM

To: joubertd@sjmsa.co.za; Craig Ehlers; KUNaidoo@aidcec.co.za; SBozo@aidcec.co.za; Casey Beary; Anton.Emiljo@eu.tenneco-automotive.com; BGroenewald@aidcec.co.za; LSchultz@aidcec.co.za; SNcomanzi@aidcec.co.za; LLazarus@crh-africa.co.za; peet@natstan.co.za; AndrewM@lumotech.co.za; NeillE@lumotech.co.za; antony@foxtecikhwezi.co.za; Gareth Fismar; marselle_alberts@veyance.co.za; Anthony Wensley; SRanchod@aidcec.co.za; van der Merwe, Karl (Dr) (Summerstrand Campus North); mieshkah@axxess.co.za

Subject: AIDC TPM Club South Africa Website and Resource Centre

Importance: High

Dear All,

It gives me great pleasure to announce the long awaited TPM Club SA website and resource centre. The website will serve as a communication tool to all cluster members throughout South Africa. Key features of the website include podcasts from international TPM veterans, TPM production tools and templates, training materials, case studies and more.

It is still in its early phase, however industry representation will be a key feature of the site to further facilitate knowledge transfer of lessons learned and industry best practice. We will continue to improve the site and ensure that it is filled with value added resources as the website matures.

The website URL is <http://tpmclubsa.co.za/>.

Please feel free to contact me should you have any queries.

Kind Regards



Automotive Industry Development Centre
Eastern Cape
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Zahier Ebrahim
Senior Project Manager:
Supplier Development

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From: ZEbrahim@aidcec.co.za [mailto:ZEbrahim@aidcec.co.za]

Sent: Thursday, January 31, 2013 11:13 AM

To: van der Merwe, Karl (Dr) (Summerstrand Campus North); Lourens, Ann (Dr) (Summerstrand Campus North)

Cc: LSchultz@aidcec.co.za

Subject: AIDC Jobs Fund Recruitment Drive

Dear Anne and Karl,

Compliments of the season to you and all the best for the new year. As discussed briefly last year, we have quite a unique opportunity for some of the candidates in Industrial Engineering.

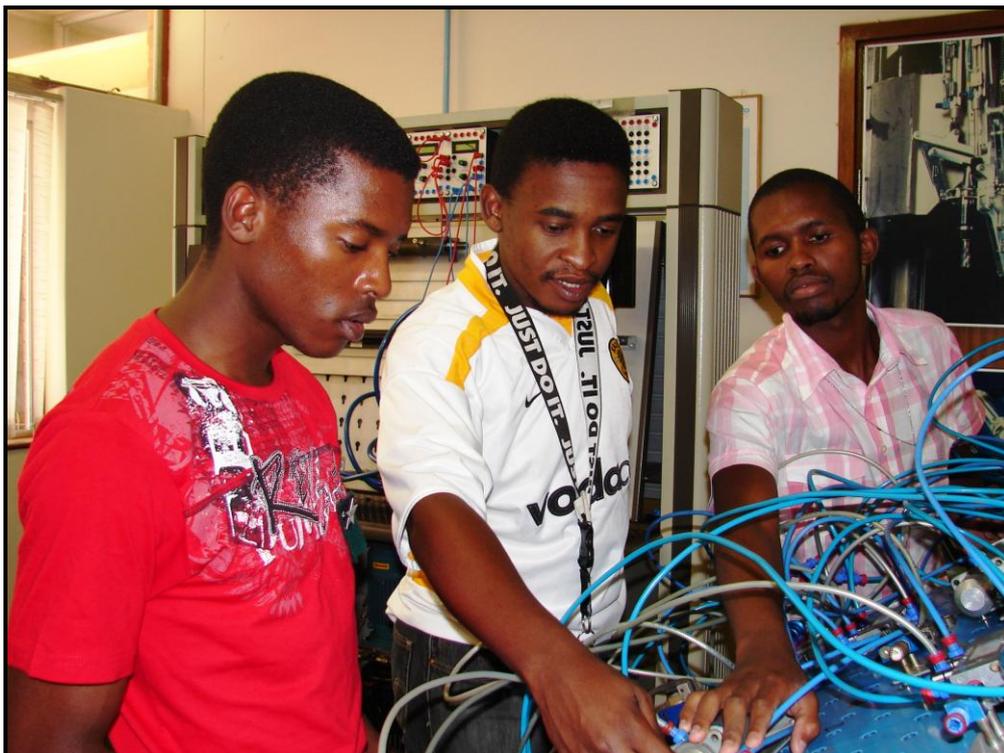
We have sent out a number of job adverts and have received over 800 responses. Although positive, I fear we might still be missing some of the key candidates that would benefit most from this (unemployed, star students etc).

The programme will afford also unemployed individuals and other well suited candidates with experience up to ten years to be part of this programme. The objective is to feed industry with the finest calibre of engineers.

We have included fantastic training opportunities as well which forms a large part of this programme including Six Sigma Black Belt (certified), CAD (advanced), Cleaner Production, TPM and international best practice tours for the top candidates of the programme.

The advert provides more detail as the recruitment is spread over experience and qualification determining the remuneration of the successful candidates. The remuneration is very attractive and candidates will be placed in Industry upon completion of the programme (12 months). We have through the newly formed Automotive Industry Cluster a platform to ensure placement's are made according to industry requirements. It would be greatly appreciated if you could circulate this advert or perhaps place these on the notice board. We are seeking 45 individuals each year.

Kind Regards



ACTIVITY 1.7	Serving on peer review panels nationally and internationally.
Participant: ✓ Dr K Van Der Merwe	The South African Institute of Industrial Engineering (SAIIE) is the learned society for the Industrial Engineering discipline and publishes the SAIIE Journal. Dr K Van Der Merwe and Dr Ann Lourens are appointed and active reviewers for this Journal. Dr Ann Lourens is also a reviewer for conference papers submitted to the ASEE

Criteria 1: The impact and significance of the engagement activity.

The reviewing of journal articles adds value to the individual's as well as the university' academic standing, which will facilitate the achievement of NMMU's 2020 and pave the way for excellent international collaborative status.

Criteria 2: The intellectual endeavors contributed by the engagement activity.

As a reviewer for a learned society journal, the incumbent is always at the cutting edge of new developments within the discipline. This has tremendous value in curriculum and subject material development. It furthermore empowers the individual to render valuable expert opinions to industry and fellow colleagues .
Effective journal reviewing furthermore not only brings new technology to the fore, it also requires significant critical thinking and evaluative processes

Criteria 3: Communication and dissemination of knowledge and expertise.

In the reviewing process, communication is normally at a high level between the reviewer and the journal editor. Dissemination of knowledge and expertise further develops between all parties as well as colleagues.

Criteria 4: The strategic importance of the role performed by the individual/team.

Reviewing is a task with a high level of responsibility as the learned society and the associated publisher expresses confidence in the reviewer to ensure that the articles published are at a high standard. It also adds luster to the status of the institution where the reviewer is employed

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

Both external and internal readers of learned society journals are critical readers and appreciate the effect of reviewers that contribute to the academic standards of journals. Reviewers are also acknowledged in the journal and in so doing their intellectual network is developed

Criteria 6: The integration of engagement into the core academic functions.

Article reviewing prepares individuals for constructive developmental discourse during subject matter and Advisory board meetings. The outputs of these meetings are concretized in module curriculum adjustments including teaching, learning and assessment processes as well as research projects

Contacts

Lynette Pieterse

SAIE and SAJIE Administrator

Southern African Institute for Industrial Engineering

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EXHIBITS

The exhibits below indicate the acceptance of papers served and reviewed.

Editor: Prof Susan Adendorff Southern African Institute for Industrial Engineering Tel: +27(0) 12 420 4278 University of Pretoria Fax: +27(0) 12 420 4439 PRETORIA 0001 E-Mail: susan@up.ac.za

South African Journal of Industrial Engineering

Published by the Southern African Institute for Industrial Engineering

SSN 1012-277X

2012-02-29 Reference nr: Publ ID: 2011/379/cvs

Dear Mr van der Merwe

SCHEDULING IN A SINGLE-STAGE, MULTI-ITEM COMPATIBLE PROCESS USING MULTIPLE ARC NETWORK MODEL

Thank you for your review of this paper.

Regards Susan Adendorff **EDITOR**

-----Original Message-----

From: conferences@asee.org [mailto:conferences@asee.org]

Sent: Friday, October 18, 2013 2:05 AM

To: Lourens, Ann (Dr) (Summerstrand Campus North)

Subject: ASEE Paper System: Review assigned

Hello,

Your chair has requested you review a paper, Longitudinal Evolution of an Inclusive, College-Wide Integrated Engineering Leadership Curriculum.

You can review the paper at <http://www.asee.org/public/conferences/32/papers>

IMPORTANT: Please read Reviewer Requirements and Instructions at

http://www.asee.org/conferences-and-events/conferences/annual-conference/2014/2014AC_Reviewer_Instructions.pdf.

If you are experiencing complications, or if you have questions after reviewing the Program Chair Kit, please contact our Conferences staff at (202) 331-3500 or via e-mail at conferences@asee.org.

Thank You,
ASEE

2. ENGAGEMENT THROUGH TEACHING AND LEARNING

The focus of this section is on activities that are related to teaching and facilitating learning that provide students with the opportunities for applied learning, address the needs of external communities as well as deepen student and staff civic responsiveness in relation to the academic project and includes inter alia:

2.1 Work integrated learning

2.2 Continuing professional development and community-based education

2.2 Collaborative curriculum design with external stakeholders

2.4 Customised training and short learning programmes

2.5 Alternative modes of delivery to accommodate non-traditional students



ACTIVITY 2.1	Work Integrated Learning (Work place learning)
<p>Participants</p> <ul style="list-style-type: none"> ✓ Dr A Lourens ✓ Dr K Van Der Merwe ✓ Mr A Murray 	<p>The National Diplomas in Industrial Engineering and Operations management contains 120 credits of Work Place Learning. This requires the development of practical training logbooks with learning outcomes, the sourcing of placement opportunities, the regular monitoring of students on site and the assessment of logbooks.</p> <p>Effective placement and the development of suitable learning outcomes are dependent on active engagement and collaboration with industry.</p>

Criteria 1: The impact and significance of the engagement activity.

The graduation of students and the associated student throughput rate is fully depended on the successful placement of students for workplace learning. Industry will only accept placements if they are satisfied with the theoretical background of the students, the specified learning outcomes and most importantly the collaboration between industry and NMMU. The NMMU Industrial Engineering department is very effective in this overall process which is mainly due to the excellent rapport that the colleagues have with industry.

Criteria 2: The intellectual endeavors contributed by the engagement activity.

Academics involved with Work place learning must have an intimate relation with and understanding of Industry and its operational requirements. In the collaboration/engagement process, relevant industry processes are studied to ensure that the achievable learning outcomes required for the qualification will be acceptable to NMMU and that industry will be satisfied with the training that must take place to achieve it. This process of engagement adds significant benefit to the department's understanding of industry and its academic and practical training requirements

Criteria 3: Communication and dissemination of knowledge and expertise.

Relevant information and knowledge is gained and also disseminated during regular monitoring visits to industry when both the students and the trainers are engaged with to ascertain the effectiveness of the training process and the satisfaction levels experienced by all parties (NMMU, Industry and Students). Work place learning issues are also discussed at Advisory board meetings.

Criteria 4: The strategic importance of the role performed by the individual/team.

Work place learning is probably the closest relationship that a university can have with industry. The role of academics w.r.t Work place learning is therefore cardinal in establishing and building collaboration and status for the university which in turn has a positive effect on funding and further opportunities of collaboration i.t.o research projects, consultancy services etc

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

The engagement activities of the department of Industrial Engineering in Work place learning is widely acknowledged by industry as reflected in their effective placing processes and their proactive identification and presentation of SLP's to address HR development needs which stems from regular Work place learning monitoring visits

Criteria 6: The integration of engagement into the core academic functions.

The teaching and learning process of the students are expanded through practical assignments in industry that is directly linked to specific Module outcomes such as Work study 2 where the students must study a specific industrial process and report on it. In this way, the students can easily associate theoretical learning with real practical situations.

Contacts

<p>Welfit Oddy 041 - 404 6712</p> <p>Providence Health Risk 041 395 4400</p> <p>Fresenius-Kabi 041 487 2865</p> <p>VWSA 041 994 5615</p> <p>Eberspacher SA 041 408 5200</p> <p>Alberto Swartz Aberdare Cables T: 041 405 6000 aswartz@aberdare.co.za</p> <p>Andrew Sutton Continental Tyres Tel: 041) 406 7111</p> <p>Luke Oosthuizen Johnson Controls 041 995 4400</p>	
ACTIVITY 2.2	Continuing professional development and community-based education
<p>Participants</p> <p>✓ Dr A Lourens</p>	<p>Women in Engineering Leadership Association (Wela)</p> <p>The women in engineering leadership association was initiated with the purpose of assisting and encouraging female students and women to excel in the traditionally male-dominated field of engineering. This has resulted in wela being a multi-cultural and diverse group of young women who are aspiring engineers and working women.</p> <p>The programme is structured to develop female students and women</p>

	<p>engineers on an academic, personal and professional level. Throughout the year we make it our aim to assist and guide the wela students through their studies by hosting various workshops, interventions and discussion panels.</p>
--	---

Criteria 1: The impact and significance of the engagement activity.

Internationally Engineering falls within the ambit of Scarce Skills. Within the existing engineering corps there is a very low representation of female technicians, technologists and engineers. Wela in its mission offers a diverse range of support and developmental services. Typically, those joining the programme want to make a difference in their community and this can be done through the drive these women have to succeed and conquer the engineering field.

Criteria 2: The intellectual endeavors contributed by the engagement activity.

Wela, through its activities, facilitates the presentation by experts on a wide variety of topics including, inter alia, the following which are complementary to engineering studies: Portfolio development; Team building; Strengths and weaknesses; Wellness; True colours; Assertiveness and conflict management; 7 Choices workshop; Self-defense; etiquette; netiquette; Women in industry; Exam preparation, CV preparation etc. The workshops cover professional, personal and academic development.

Criteria 3: Communication and dissemination of knowledge and expertise.

Communication and dissemination of knowledge amongst participants takes place in the Wela room and on line. Knowledge is furthermore shared across the faculty in departmental, school and Faculty management committee meetings as well as industry as the merSETA which to a large extent represent the local manufacturing industry. International collaboration on the project and dissemination of knowledge and expertise is well on the way with international conference papers that will be read during 2013

Criteria 4: The strategic importance of the role performed by the individual/team.

It is strategically important for NMMU to increase its numbers of female graduate engineering students to ensure adequate female representation in its student cohorts and industry also needs to be able to recruit female students to ensure employment equity which is representative of the population.

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

The importance of this intervention is fully recognised by the merSETA as it is the principle funding agent for the project. The Faculty further offers full support to the intervention and that is bolstered by various colleagues from other departments. As from 2013 a formal NMMU SLP certificate will be

issued to successful participants.

Criteria 6: The integration of engagement into the core academic functions.

The activities of Wela are integrated into the faculty activities i.t.o yearly activity planning. The intervention is also integrated with the faculty Mentorship programme and the early identification of learners at risk. Findings from research done to date have been collated and international conference papers will be read during 2013

Contacts



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EXHIBITS

The exhibits below highlight the marketing material and programme associated with WELA

VISION

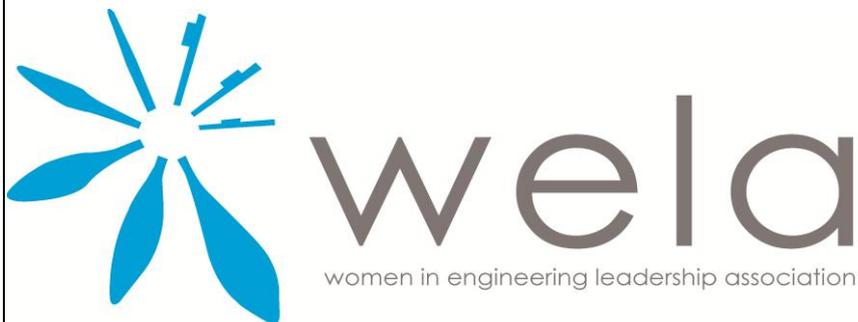
To be recognised as the first choice University for supporting Women in Engineering

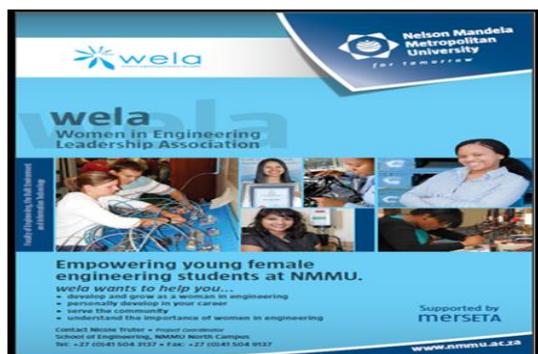
MISSION

To offer a diverse range of support and developmental services to Women in the field of Engineering

GOALS

- Establish Engineering as a desirable career aspiration for girls and Women (To show that Engineering is not just a male dominated field but that women can also excel in it)
- Develop retention and growth strategies for Women already studying in the field of Engineering (To assist and guide the women engineering through their studies and personal growth and development)





ALL ACTIVITIES	TYPE	GROUP	
Portfolio building Portfolio recap	Workshop Lunch meeting	1	Attendance & Included in portfolio
Team building	Workshop	1	Attendance & Included in portfolio
Wellness	Workshop	1	Attendance & Included in portfolio
Strengths assessment	Workshop	1	Attendance & Included in portfolio
Wellness feedback	Workshop	1	Attendance & Included in portfolio
True colours	Workshop	1	Attendance & Included in portfolio
Assertiveness	Workshop	1	Attendance & Included in portfolio
Conflict management	Workshop	1	Attendance & Included in portfolio
Choices workshop	Workshop	1	Attendance & Included in portfolio
Inspirational students publication			Portfolio and written piece to appear in booklet.
Panel discussion Global engineering	SEMINAR	1/ 2	Attendance & Included in portfolio
Etiquette and netiquette	SEMINAR	1/ 2	Attendance & Included in portfolio
Technical project	ENG PRAC	1/ 2/3	Report from project leader & included in portfolio
Factory visits	ENG PRAC	1/ 2/3	Attendance & Included in portfolio
Mentorship	Workshop	2	Training and evidence of at least ten meetings, portfolio
Leadership practice	SLP	3	Attendance & Included in portfolio
Presentation skills Job interviews	Workshop	2/3	Attendance & Included in portfolio
Self-leadership (2 days)	SLP	2	Attendance & Included in portfolio
Lean (1 day)	SLP	2/3	Attendance & Included in portfolio
Portfolio		2/3	Submit portfolio for final assessment and to qualify for certificate
Self Leadership	SLP	2/3	Attendance and included in portfolio

1. On a scale of 1 – 5 (with 5 being the most useful for you as an individual), rate the following sessions

Session	Rating (1 – 5)	Rate the top 3 (your highlights)
Launch	4	1. Chata Romano
True Colors	2	2. Coffee meetings
Strengths and Weaknesses Assessment	4	3. Panel Discussion
Assertiveness and Conflict Management	5	
Portfolio and Team Building	4	
Portfolio Recap	Did not attend	
Chata Romano	5	
7 Choices of Successful Women Workshop	3	
Panel Discussion	5	
Etiquette and Netiquette	Did not attend	
Technical Project	4	
Getting ready for exams	5	
Coffee meetings	5	

2. Based on your experience thus far with wela, what are the benefits to you personally?

Wela helped me grow as a person by developing myself.

3. Is there any part of the wela program you did not like or enjoy?

No

4. Do you have any suggestions for improving the welaprogramme?

Not at all, I liked the program very much and enjoyed it. Coffee meetings was especially fun and I would have liked to get together more often in that manner.

5. Rate (circle the appropriate number) your OVERALL wela experience and reasons for your rating (on scale of 1 – 5 with 5 being the highest)

Rate	Why?
1	I enjoyed being a part of wela and all the workshops offered.
2	I learned a lot from the workshops and will use it in the future.
3	
4	
5	

6. How many times (more or less) did you meet with your mentor? None (I did not know even who mine was)

7. Would you have liked more meetings with your mentor? Yes

8. Did the mentorship programme help you at all?

Not at all	A little bit	A lot	Other (please specify)
			X (did not meet with them)

From: Kotie Grove [mailto:kotie.nmmut@mweb.co.za]

Sent: Thursday, November 29, 2012 2:41 PM

To: Lourens, Ann (Dr) (Summerstrand Campus North)

Cc: Truter, Nicole (Mrs) (Summerstrand Campus North); Du Preez, Karl (Mnr) (Summerstrand Campus North); Affat, Renita (Summerstrand Campus North); Van Rooyen, Sheree (Ms) (Summerstrand Campus North); De Lange, Michael (Mr) (Summerstrand Campus North)

Subject: RE: Women in Technology Legacy application

Dear Dr Lourens

Just to confirm that we have decided to make a contribution of R60 000 to the WELA Program for 2013. I have discussed this with Almorie Maule and Renita Affat who are both enthusiastic about your program. We will arrange for a small function to officially announce this partnership and to have some photos taken. Sheree will finalise this event

Kotie Grove

NMMU Trust Legacies



WELA and WOMEN IN TECHNOLOGY PARTNERSHIP



Elisabeth Malatji (WELA student) was chosen to participate in an exchange programme with Ingolstadt University in Germany

ACTIVITY 2.3	Collaborative curriculum design with external stakeholders
<p>Participants</p> <ul style="list-style-type: none"> ✓ Mr A Louw ✓ Dr A Lourens ✓ Dr K Van Der Merwe ✓ Mr A Murray ✓ Mr J Snyders ✓ Mr C Joubert 	<p>Laboratory design and curriculum development</p> <p>Mr A Louw in close collaboration with industry designed and proposed new Industrial Engineering laboratories for the department. The facility which is now completed will be used to address the following learning experiences:</p> <ul style="list-style-type: none"> ✓ All Basic Industrial Engineering Concepts ✓ Lean Manufacturing & Theory of Constraints Concepts ✓ Technology Dependant Applications <p>The facilities include amongst other a fully functional automated production line, a computer laboratory, an automation/machining and layout laboratory</p> <p>The department also hosts an annual Advisory board meeting which is well supported by industry.</p> <p>The department is also currently busy with a re-curriculation process, namely the HEQSF</p>

Criteria 1: The impact and significance of the engagement activity.

NMMU is now at the forefront South Africa in providing relevant and excellent laboratory exposure to entrench theory. The collaboration with industry ensured that the infrastructure designed and equipment procured are at the cutting edge of technology and relevant to the training required by industry

Criteria 2: The intellectual endeavors contributed by the engagement activity.

Mr Louw and the department carefully scrutinized the curriculum and after contemplating which learning outcomes will be best supported by supportive laboratory exposure, consulted with industry to ensure relevance of infrastructure and equipment prior to committing to the design. The design was also based on sound engineering principles.

Criteria 3: Communication and dissemination of knowledge and expertise.

The design was submitted as a formal proposal clearly outlining the motivation and design. The project proposal went through various iterations in finalization with collaboration from experts in other departments and industry and was then formally committed to the Institutional budget. Mr A

Louw also played a very significant role in the building and supportive infrastructure design and commissioning.

Criteria 4: The strategic importance of the role performed by the individual/team.

Industrial engineering has excellent academic standing i.t.o its theoretical subject presentations and leadership in that field. It is therefore of strategic importance to also ensure that the theoretical excellence is supported by excellent practical facilities. The collaboration with industry and the funding received from DHET has now assured that.

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

The infrastructure designed with our local industry support has received accolades from various universities, the Engineering Council of South Africa (ECSA), the Advisory board and industrial partners from as far as Germany.

Criteria 6: The integration of engagement into the core academic functions.

The essence of the new laboratories is to concretize theory through practical exposure. Practical learning outcomes for the Engineering science modules are being developed to be implemented using the new infrastructure. The new HEQSF re-developed curriculum will make extensive use of these facilities.

Contacts

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EXHIBITS

The exhibits below describe the two projects in brief. The exhibit also includes excerpts from the original proposal submitted for the Industrial Engineering Laboratory. Items of discussion from the annual Advisory Board meeting are also included in the exhibits below.

AIDC - Project Summary Report

Name: Petrus Jacobus Joubert

Project name and dates	OEM Supplier Development through AIDC (Borbet and Halberg Guss) Dec 2012 to March 2013
Engineering brief and Objective	Facilitate and manage the supplier development projects at Halberg Guss (Struandale) and Borbet (Swartkops). Two Industrial Engineering students worked on the projects. Through the projects the project team got exposed to the industry and did research for solutions for the specific projects. The project team also had to calculate for each project the payback period with the possible cost saving after payback.
Environment	Industry - Borbet and Halberg Guss
Summary <i>(State engineering problems; solutions)</i>	<p>Halberg Guss Project summary</p> <ul style="list-style-type: none"> • Water Harvesting and water saving – Harvest water from roofs to use in toilets and for gardens. This project was done to improve the green footprint of the facility. • Heat exchanger project. <p>This project will consider the problem of energy that is lost, in the form of exhaust gas, from a fuel fired furnace at Halberg Guss – Port Elizabeth – Struandale. We will a look at a possible solution to minimize the loss of energy, as well as the benefits thereof.</p> <p>Waste-gas heat losses are unavoidable in the operation of all fuel-fired furnaces. Air and fuel are mixed and burned to generate heat, and a portion of this heat is transferred to the furnace and its load. When the energy transfer reaches its practical limit, the spent combustion gases are removed (exhausted) from the furnace via a flue or stack to make room for a fresh charge of combustion gases. At this point, the exhaust flue gases still hold considerable thermal energy.</p> <p>Recouping the flue gas thermal energy will greatly increase the efficiency of the furnace, and subsequently reduce the cost of producing aluminium.</p> <p>Cost of project =Suppliers didn't submit quotes. See note at bottom. Annual Saving = R 224 112</p> <p>Borbet Project summary</p> <ul style="list-style-type: none"> • Installation of lids on furnaces. This project will consider the problem of energy that is lost from an open crucible furnace, at the Borbet - Port Elizabeth foundry. We will look at a possible solution to minimize the loss of energy, as well as the benefits thereof.

During the melting and holding process, there will be a continuous reduction in temperature, of the aluminium. This reduction in temperature is due to heat loss from radiation, and in order to keep the aluminium at the desired temperature, this heat loss must be compensated for by the furnace. This in turn leads to increased cost of heating the aluminium, as well as refractory wear.

By means of effective heat conservation, the losses and the consequences can be minimized, and thereby reduce the overall cost of produced aluminium.

Cost of project = R150 000

Annual Saving = R382 164

- Installation of heat shield on the burner of the ladle pre-heating station. This proposal will consider the problem of energy that is being lost from an open ladle preheater at Borbet - Port Elizabeth foundry. We will look at a possible solution to minimize the loss of energy, as well as the benefits thereof.

By means of effective heat conservation, the losses and the consequences can be minimized, and thereby reduce the overall cost of produced aluminium.

Cost of project = R10 552

Annual Saving = R283 974 per month, Assuming a 20% gas saving. Need to measure the flue and heat to calculate the saving. No funds available to get a contractor to do it.

- Min Lubrication system. This project will consider the problem of lubricant being used on normal soluble old flood application, at the Borbet - Port Elizabeth foundry. We will look at a possible solution to minimize friction/heat on tool ware and the benefits thereof.

During metal cutting with the current use in lubrication, low lubricity occurs and heat generation on the tool is built up. This causes a risk on the tool head, with excess heat generation the tool is most likely to break which can cause additional costs. The swarf generated from the tools used with this lubrication gets mixed together with the fluid causing further problems with cleaning and disposal costs.

By using a lubricant that not only decreases heat and improves tool life but is easy to clean with no fluid disposal the above problems can be avoided.

Financial implications:

To run this system the costs will vary for new nozzle applicators:

R12 500 – two nozzle applicator

R45 800 – three nozzle applicator with a rotary union

The oil usage with continuous application over an eight hour shift, works out to only +100cc. This equates to approximately R15.00 per eight hour shift or R1.88 per hour of continuous use.

Note:

The students have found it very difficult to get quotes from suppliers. When the suppliers hear it is students that are working on a project, they don't really want to compile quotes. The suppliers feel that there is no real commitment that anything will come from the quotes and that they are wasting their time. Going forward with future projects, I think we must try to get the companies involved in future to get the quotes for the projects instead of the students contacting the suppliers. Students can gather information on possible suppliers for the companies.

	Analyse the production process and identify possible energy saving projects with students in two factories (Halberg Guss Struandale and Borbet Swartkops). Generate a final engineering report to address selected issues. Generate engineering reports for both the water reticulation and renewable energy systems.
Title of report or publication	OEM Supplier Development through AIDC
Budget	There was no budget for the projects. Where possible, we gathered all the cost to implement the project as well as the payback period and the cost saving after the payback (See attached report)



**Nelson Mandela
Metropolitan
University**

f o r t o m o r r o w

Work Study 2 Industry Projects

29/5/13

For the subject/module Work Study 2 the students have to complete a productivity improvement project in industry as part of the module requirement.

This project gives the students hands on experiences in industry and the opportunity to put what they have learnt in the class room into practice in the working environment.

The students have to find companies to do the project in but in the last year companies have approached me to utilize the students and give them (the students) much needed experience of a working environment and at the same time adding value to the companies that have used the students.

The project focuses on productivity improvement where the students have to utilize three work study techniques of which time studies are a prerequisite. Some of the other techniques used could include the following:

- Activity sampling
- Method studies
- Work layouts
- MTM/ PMTS
- Standard operating procedures
- Incentive schemes
- Problem solving process

In 2014 the students all went to Federal Mogul and the contact person was:

Lisakazi Ndzululeka

Federal Mogul of South Africa - Sealing Systems Division

Industrial Engineer

Vehicle Component Solution

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Mobile: +27 7226 053 46

VOiP: 8 368 4253

E-mail: Lisakazi.Ndzululeka@federalmogul.com

Second semester 2013 the students completed projects at SAB, Cadburys (Mondelez), Lumotech and MA Automotive

The contact people at the companies are as follows:

At MA Automotive:

Dawie van Niekerk

Project Engineer

Cell: 082 653 8959

Email: d.vanniekerk@za.ma.gruppocin.com

www.gruppocin.com

And plant manager Mr Craig Serfontein.

At SAB

Deon Le Roux Engineering Controller

Tel: +27 41 404 3537 **Cell:** +27 82 921 8103 **Fax:** +27 86 680 9475 **Email:**

Deon.LeRoux@za.sabmiller.com

[Website](#) | [Facebook](#) | [Twitter](#) | [SAB Reality Check](#)

*SAB Customer Interaction Centre (CIC) for orders, queries, complaints and credit related matters **Tel: 0860 000 722***

Consumer careline number: 0860 12 14 14

The South African Breweries (Pty) Ltd

Reg no. 1998/006375/07

At Mondelez (Cadbury)

Ralleen Cunningham

Capability Manufacturing Specialist

Mondelez South Africa (Pty) Ltd

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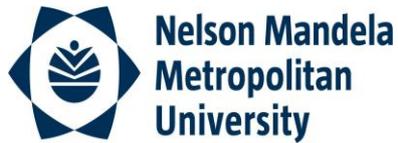
And at Lumotech

Charles Blom

Industrial Engineer • Total Industrial Engineering Department • Lumotech (Pty) Ltd • www.lumotech.co.za

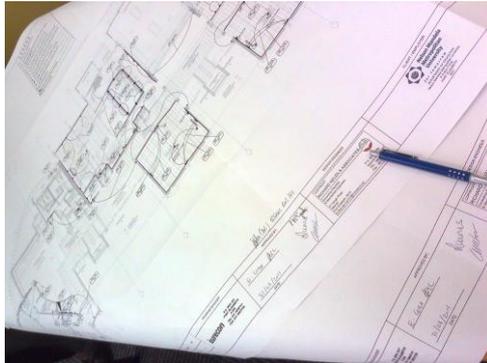
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for tomorrow

**Project Proposal
For
The Department of Industrial Engineering:
Simulated Work Environment &
Industrial Engineering Laboratory**



**Prepared by: A. Louw for A Lourens
Faculty: Engineering, Built Environment & IT
Department: Industrial Engineering**

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APPENDIX

Executive Summary

This document outlines the proposed laboratory facility for the Department of Industrial Engineering. It focuses on the need for such a facility based on the application and requirements of the qualifications offered by the Department.

This need is amplified by the current lack of any practical and hands-on training facility in this field in the Nelson Mandela Metropolitan University.

It is believed that such a facility will improve the quality of teaching at various levels of study and thereby aid in making our qualifications more sought-after and more marketable. This document proposes that the facility be designed and built in three phases; the first being a simulated work environment where the principles of assembly line manufacturing, work study and other concepts can be experienced by the students. Phase 2 sees a 25 station Computer Laboratory being built to cater for the growing numbers of students and to enhance the limited existing facilities. During phase 3, a scaled automated factory will be put in place to allow for more advanced technologies i.e. Flexible Manufacturing Systems and Computer Integrated Manufacturing, to be demonstrated and taught.

Finally the document proposes a pro-forma budget for building and fitting the proposed facility. Phase 1 is estimated to cost R4.5 million, this will entail the largest portion of the construction and will house the simulated work environment (SWE). Phase two is estimated to cost R3.2 million and Phase 3 another R1.5 million. The project is foreseen to be able to generate additional income by means of short courses and outsourced induction programmes. This is estimated at around R400 000 in the first year of implementation and likely to increase as more facilities become available.

This project underlines the department's growth strategy by improving quality of teaching, increasing marketing and increasing industry involvement through courses and community outreach.

1 Background

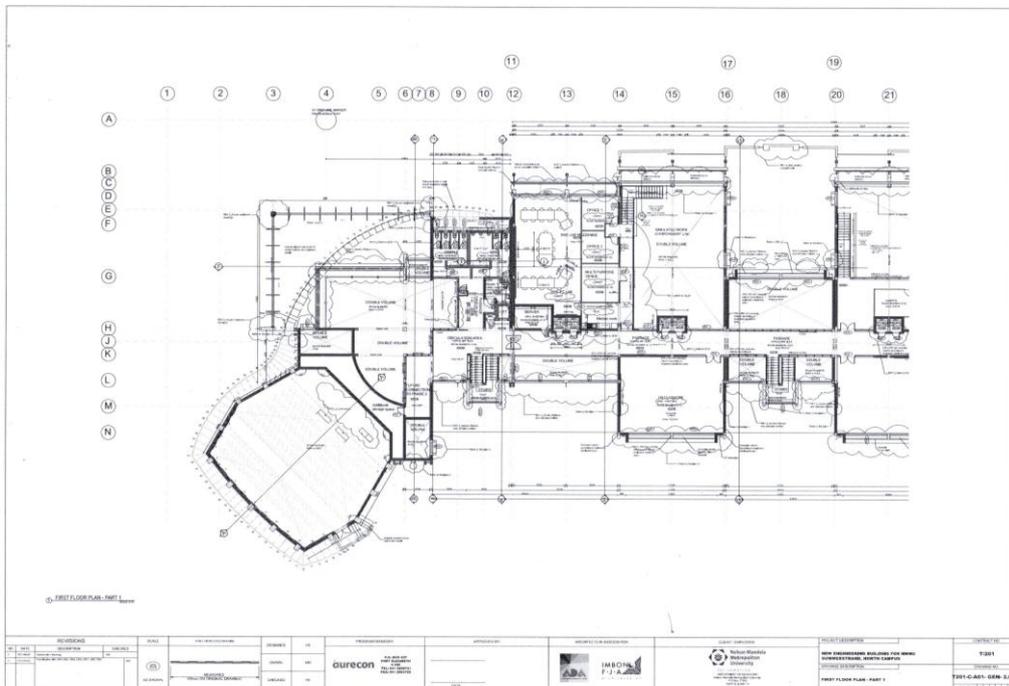
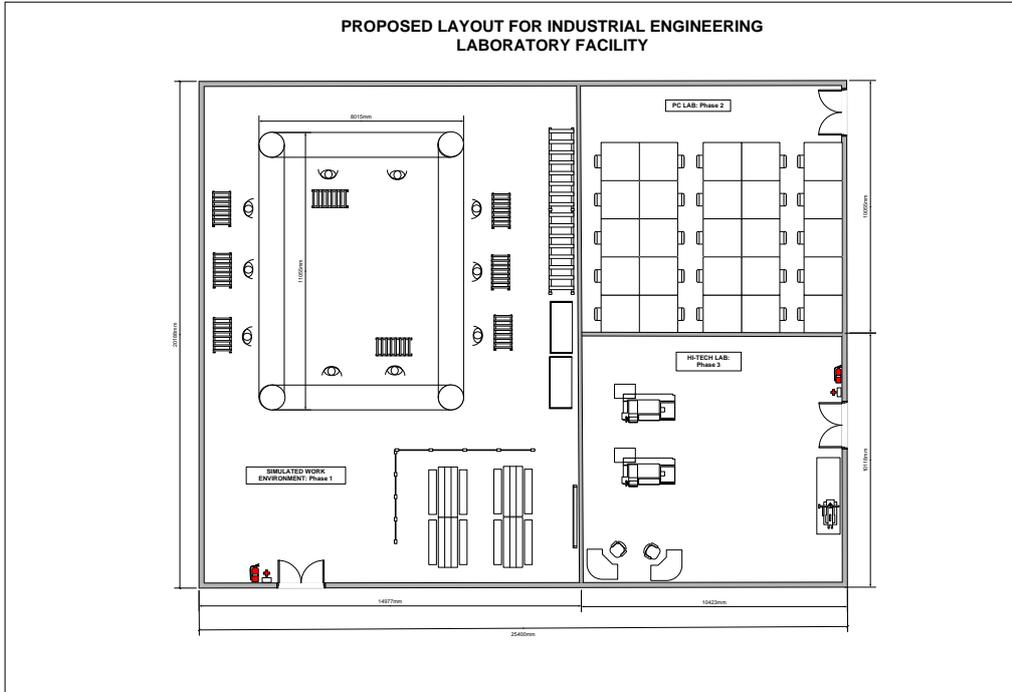
The Department of Industrial Engineering has been recognised as an independent department in the Faculty of Engineering in 2003, before this it had been considered a part of the Mechanical Engineering Department. The department has, for many years, been offering various qualifications in the Industrial and Operations Engineering field. Currently the department has an annual intake of more than 70 first year students and 60 students graduate on average throughout the qualifications offered on an annual basis.

Although the IE programme has been accredited by ECSA in 2003, the department is continuously looking for ways to improve the quality of its teaching. One such improvement lies in practical and hands-on laboratory training and is seen as a significant component by industry and students alike.

Research indicates that very few institutions have a dedicated laboratory in the area of industrial engineering. Some institutions tend to focus on computer based simulations of the shopfloor rather than following an experiential approach. The Nelson Mandela Metro has a huge automotive sector where technology and labour needs to interact daily. This further underpins the need for a low-tech introduction into basic manufacturing concepts and principles.

The department views such a facility as an opportunity to marketing its qualifications to learners from a variety of backgrounds; to improve the quality of tuition of existing qualifications and as a business tool to increase the departmental income from short courses and other initiatives.

The remainder of the report is available on request



STUDENT PROJECT WITH FABLAB

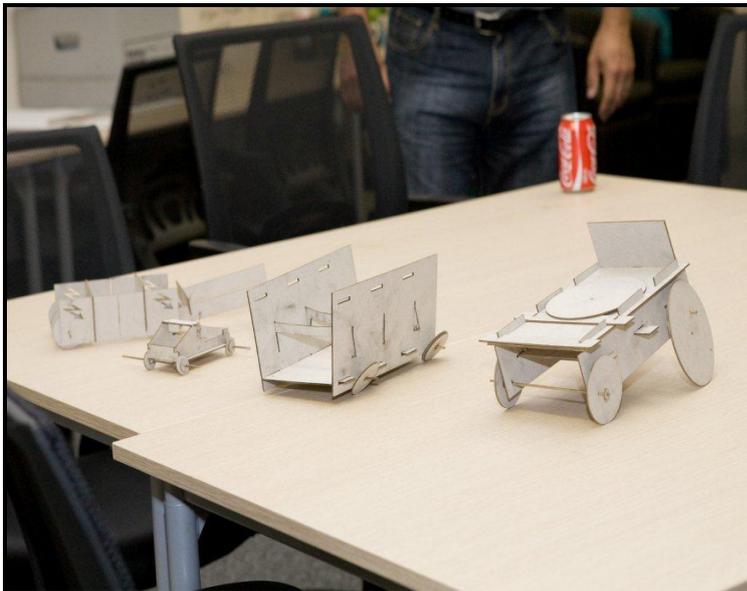
Students sharing their projects



Dr Ron Beyers and Mr Andre Louw



Student product





AGENDA – Advisory Board Meeting
Department of Industrial Engineering
We engineer business
Leaner, better, faster

Date: 7 November 2013

Time: 13:00 – 15:30

1. **Welcome**
2. **Apologies**
3. **Functions of the Advisory Board**
4. **Department Vision/Mission/Values**
5. **Selected Departmental Activities**
 - 5.1 **Co-curricular interventions,**
 - 5.2 **WELA**
 - 5.3 **Short courses**
 - 5.4 **Journals, research**
 - 5.5 **Lean Unit (Dr van der Merwe)**
 - 5.6 **Facilities (Mr Louw)**
 - 5.7 **Lab projects (Ms Hempel)**
6. **HEQSF**
 - 6.1 **Suite of Qualifications**
 - 6.2 **New HEQSF Structure**
7. **Input from members**
 - 7.1 **Uncovering the needs**
8. **Close of meeting**

ACTIVITY 2.4	Customised training and short learning programmes
Participants ✓ Dr A Lourens ✓ Dr K Van Der Merwe ✓ Mr A Louw ✓ Mr A Murray ✓ Mr J Snyders ✓ Mr C Joubert	<p>The Department of Industrial Engineering through their close engagement with industry has developed a wide range of Short learning programmes (SLP's) in collaboration with industry to empower their human resources and to improve manufacturing efficiency</p> <p>These are offered on a schedule base as well as on demand and often-on industry premises over weekends. Some of the SLP's offered regularly are listed below:</p> <ul style="list-style-type: none"> ✓ Continental Tyres International in Hannover Germany serving European, Asian and South American needs ✓ Project management for manufacturing ✓ Introduction to Operations Management ✓ FMEA ✓ LPPM ✓ Quality Assurance ✓ Value Stream mapping ✓ Total quality management ✓ Western Cape Furniture manufacturing initiative

Criteria 1: The impact and significance of the engagement activity.

The Department's high level of development and delivery of customized training and Short learning programmes (SLP's) is a clear indication of the engagement level of the department. All SLP's are custom designed for the specific industry with relevant case studies to illustrate application. The impact made on a regular basis firmly establishes NMMU's status as a new generation university, which is enabling the industrial environment to manufacture competitively in the global market.

Criteria 2: The intellectual endeavors contributed by the engagement activity.

Developing relevant up to date Short Learning Programmes on a continuous basis and for a variety of industries calls for an excellent understanding of the knowledge field and its recent ongoing developments. The infusion of practical case studies relevant to a specific industry requires significant innovation and academic creativity

Criteria 3: Communication and dissemination of knowledge and expertise.

All Short Learning Programmes are well documented and in many cases course notes are developed and presented. Feedback from the industry and the delegates is obtained and analysed to improve the teaching and learning experience. Where required adjustments are implemented in collaboration with industry.

Criteria 4: The strategic importance of the role performed by the individual/team.

The Nelson Mandela Bay Metropolitan community is economically fully depended on the economic success of the manufacturing industry. The role played by the Industrial Engineering Department to improve production efficiency is therefore of strategic importance to the region and NMMU. The university in itself also gains tremendous status which in turn facilitates the work of NMMU fund raisers

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

The engagement of Industrial Engineering and the quality of their Short Learning Programmes have been very well recognized by industry on a regional, national and international basis. The department for example has been allocated the honour of providing international Industrial Engineering training for Continental tyres at the mother factory in Hannover Germany, serving also their training needs for plants in Asia and South America.

Criteria 6: The integration of engagement into the core academic functions.

The engagement of the Department with industry in the development and delivery of Short Learning Programmes forms the foundation of most undergraduate courses and provided research platforms for 3 Doctorates to date.

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Pamela De Wit

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EXHIBITS

The exhibits below highlights the short courses presented in 2010, 2011 and 2012.

Short Courses Presented 2012	
Project Management for Manufacturing (Offered 3 times)	VWSA, Continental, wela girls
Introduction to Operations Management (Offered 3 times)	Continental, Schnellecke, DAS
FMEA (Offered 1 time)	VWSA, Transnet, Eskom, Welfit Oddy, Borbet, Kromberg and Schubert
Lean practitioners programme for manufacturing (Offered 2 times)	VWSA, Tenneco
Quality Assurance (6 months programme)	VWSA, Halberg, Eberspacher, Eastcape Wiring, Aspen, Borbet, Karoon Exhaust Systems, Umicore, Armstrong, SJM SA, Rehau Polymer Solutions, GMSA, BASF SA, Transnet, Gillette, Schaeffler, Flexider, Eveready, Continental
Value Stream Mapping	Umicore, Tenneco
DQS ISO 9001:2008 Facilitation and Awareness	Coega, Transnet, Smith International
Total Quality Management (Offered 2 times)	Transnet, NMMU (George), Shatterprufe, Eskom

Short Courses Presented 2012	
Project Management for Manufacturing	VWSA, Matla Solar water heating, Lear, Argent Industrial Limited, Umicore, Industrial Services

Introduction to Operations Management – (Offered 2 times)	Continental, Halberg Guss, DAS, Schnellecke, Faurecia Interiors, MC Design and contracting, VWSA, Coca Cola, Johnson Controls, Umicore, Willard Batteries, Howden Donkin, Aspen, Forest Dawn Properties
FMEA – Offered (Offered 1 time)	VWSA
Workstudy – (Offered 1 time)	Conti
Quality Assurance (6 months programme)	VWSA, Halberg, Eberspacher, Eastcape Wiring, Aspen, Borbet, Karoon Exhaust Systems, Umicore, Armstrong, SJM SA, Rehau Polymer Solutions, GMSA, BASF SA, Transnet, Gillette, Schaeffler, Flexider, Eveready, Continental

Short Courses Presented 2011	
Project Management for Manufacturing - (Offered 3 times)	VWSA, Continental, Welfit Oddy, Bridgestone, Faurecia, Transnet, Sappi, Eberspacher, Visteon SA, Aspen Pharmacare, Kromberg & Schubert, Shatterprufe
Introduction to Operations Management (Offered 3 times)	VWSA, Continental
FMEA – Offered (2 times)	VWSA, Welfit Oddy, S4 Intergration, Kromberg & Schubert, Coca-Cola, Aberdare Cables, Transnet
Value Stream Mapping – (Offered 2 times)	VWSA, Transnet, Volpes
Quality Assurance (6 months programme)	Dorbyl, Eberspacher, Behr, Acoustex, GMSA, Schaeffler, Borbet, Donkin Fans, Tenneco, Dupont Freeworld, Faurecia, Shatterprufe, Macsteel Trading, VWSA, Eveready, Aspen Pharmacare.

MOU signing between NMMU Department of Industrial Engineering and Continental Tyres, Germany at the Radisson Blu Hotel, Summerstrand, Port Elizabeth on 15 October 2012



MOU SIGNING PRESS RELEASE

NMMU and Continental Tires form a partnership to develop short courses

The Nelson Mandela Metropolitan University's (NMMU) department of Industrial Engineering and Continental Tires have recently signed a Memorandum of Understanding whereby the department will develop and provide short learning programmes to the international offices of this leading tyre giant.

The department will offer Industrial Engineering related courses to the staff in the Continental plant in Hannover as well as South America and Asia with the pilot course being offered in January 2013.

"This is a first for our department and we are extremely proud to have the resources and capacity to offer programmes that are internationally recognised and sought after," said Dr Ann Lourens, Head of the department of Industrial Engineering. "We are inspired by the desire to promote and strengthen existing bilateral relations and co-operation in the field of education and seek to encourage and further develop relationships with our industry partners," she continued.

Industrial Engineering focuses on systematically increasing operating performance, reducing costs, increasing reliability, improving cycle time to market and ultimately meeting and exceeding customer

requirements. It is also concerned with planning, organising, leading and controlling resources and processes within a production or service-related industry. Continental Tires will benefit immensely by offering this programme to their staff as it will ultimately assist in faster production and higher quality of their products. The ability to bring about a positive change in any organisation is unique to the Industrial Engineering profession.

“We have chosen NMMU because the Industrial Engineering department has presented a number of successful short courses to our colleagues and many of the graduates from the School of Engineering at NMMU are now in management positions,” said Mr Andreas Wulf: Head of Industrial Engineering at Continental Tire. “We are also impressed with the level of collaboration that the School of Engineering currently has with the automotive industry as this proves that they are up to date with the needs of our sector,” he continued.

Other SLP'S

Mr Karl van der Merwe with staff from the Western Cape Furniture Initiative



Mr Jaco Snyders and Mr Cobus Joubert in Hannover, Germany with Continental Tyre employees.



Dr Karl van der Merwe presented a short course: Lean Practitioners Programme for Manufacturing to the employees of VWSA. Training took place at NMMU



Dear Ann,

You are cordially invited to attend the Graduation Ceremony!

Date: Wednesday, 7 August 2013

Time: 13h00 – 14h30

Venue: Canteen Conference Room

Continental Tyre SA

Port Elizabeth

R.S.V.P. to yonela.dube@conti.co.za (HR trainee) by 23 July 2013

Continental 

Celebrating the success of the following programmes:

- Leadership Entry Programme (LEP) 2012
- Operations Management Short Course 2012
- Rubber Technology Short Course 2012
- Employee Graduation (2012/2013)

ACTIVITY 2.5	Alternative modes of delivery to accommodate non-traditional students
Participants ✓ Dr A Lourens ✓ Heinrich Williams (student) ✓ WELA technical project team	WELA identified a need within the NMMU for folding tables for disabled students. A technical project team was set up and the group of women from the different Engineering disciplines has been hard at work creating the above mentioned table.

EXHIBITS

The exhibit below highlights the proposal and aims for the above mentioned technical project

Title: A Foldable Wheelchair Table

Foreword

Accessibility is a problem for wheelchair users who attend the university. It has been identified that a student from the Engineering and Built Environment department requires the use of a folding table, as the lecture halls still do not accommodate his wheelchair.

Aim

This project aims to incorporate all the fields of engineering represented by WELA to provide an engineering solution. The group will be guided to approach the project in a professional manor and engage with the client directly, to determine the full requirements of the table for his needs. This will develop investigation and communication skills used by the students.

The project is to be managed by the student team from scope determination to the manufacture of the table. It will be required for the team to meet every Friday afternoon during the allotted free timetable hours, for at least an hour in the WELA Room. Provisions for a laptop and projector may be made for these weekly group meetings.

Project Outline

The guidance for the project is outlined in the following project sections:

1. Introduction to project. Request for applications with small motivation and commitment to the weekly group sessions.
2. Research. Arrange meeting times with the client to fully develop the scope of the project. Prepare a slideshow presentation for WELA and externals on possible design ideas. The presentation should outline the full scope of the project and a minimum of 3 concepts. It will be encouraged that some automation be used to assist the opening and closing of the table.
3. Designing. It will be expected that the chosen design be represented in a professional manor by using engineering software to produce industry standard drawings for the manufacture phase. Another presentation to WELA and externals will be arranged to show this progress.
4. Manufacturing. Provisions for a telephone will be made and the group will be able to contact suppliers and purchase materials, with supervision from WELA staff. Another progress presentation for WELA.
5. Assembly. Depending on the intended design, training could be provided for welding and machine shop training to complete the task themselves. Another progress presentation for WELA.
6. Handover. Upon completion and handover, a final presentation is required which will be an open to external persons, where the team will provide a summary of the project and their personal reflection on it. A small WELA celebration tea party.

3. ENGAGEMENT THROUGH RESEARCH AND SCHOLARSHIP

3.1 Collaborative R&D projects

3.2 Participatory research networks

3.3 Joint commercialisation of new product

3.4 Monitoring and evaluation



ACTIVITY 3.1	Collaborative R&D projects
<p>Participants</p> <ul style="list-style-type: none"> ✓ Mr J Snyders ✓ Mr C Joubert 	<p>Through the engagement activities and status of the Department of Industrial Engineering, the University of the North West (NWU) and Denel Aviation have requested the Department of Industrial Engineering to be an active partner in the THRIP funded project to develop infrastructure and processes for the manufacturing of a Regional Light Transport Aircraft in the RSA. Mr J Snyders and Mr C Joubert will be responsible for the projects as indicated below:</p> <ul style="list-style-type: none"> ✓ Investigation of requirements for a lean manufacturing facility for the production of a Regional Light Transport Aircraft in the RSA (Mr J Snyders) ✓ Lay-out Design of a Lean Manufacturing Facility for the Production of a Regional Light Transport Aircraft in the RSA (Mr C Joubert) <p>Several exploratory meetings with NWU and Denel have been concluded and it is envisaged that the colleagues will complete their Master’s dissertations after completion of the respective project</p>

Criteria 1: The impact and significance of the engagement activity.

The fact that a reputed university such as NWU and a highly technologically advanced design and manufacturer like Denel Aviation has contacted the Department of Industrial Engineering as a service provider and research partner is of extreme significance. Firstly the team will be exposed to a different manufacturing environment which will enrich their knowledge and experience in scope and secondly NMMU is entering into a new collaborative field with NWU which have not been previously explored.

Criteria 2: The intellectual endeavors contributed by the engagement activity.

This R&D Collaborative research engagement brings to the table the need for cutting edge technologies and innovative thinking. The research will expose the participants to a world of manufacturing which will be intellectually challenging but also rewarding and will set their sails for further engagement opportunities in high technology low volume manufacturing processes.

Criteria 3: Communication and dissemination of knowledge and expertise.

Currently communication is via meetings at the offices of respective collaborators and via electronic media. There will be intellectual property issues w.r.t this project which will in future determine communication and dissemination of knowledge as the projects progresses.

Criteria 4: The strategic importance of the role performed by the individual/team.

The successful completion of these projects will firmly concretize NMMU Industrial Engineering as a leading provider of under graduate and post graduate studies in Industrial Engineering w.r.t the field of high technology low volume manufacturing. The project also bring THRIP funding to the colleagues at NMMU

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

The work done to date by the Mrs Snyders and Joubert is acknowledged by NWU and Denel Aviation. As the project is still in its early days, the future outputs will ensure further acknowledgement i.t.o future project collaboration and research outputs

Criteria 6: The integration of engagement into the core academic functions.

The research will bring new innovative thinking and technologies which will be captured in future under graduate and post graduate study material and especially in that of the new envisaged HEQSF curriculum

Criteria 7: In the case of engagement through research and scholarship, the information referred to under Assessment Criteria (Criteria 7), where applicable needs to be provided.

At this stage the collaborating partners are focused on the conceptualization of the issues at hand from which the research problem statements will be distilled and finalized. The research process w.r.t methodology, data collection and analysis etc will follow suit. The project supports the NMMU research theme i.t.o Advanced Manufacturing.

Contacts

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North West University

Prof R Van Rooyen
Denel Aviation
Chief Design Engineer
Rooivalk,
0733391734
Denel Aviation

EXHIBITS

The exhibits below highlight the involvement with the Univeristy of the North West and Denel Aviation in the THRIP funded project.

From: AGH mweb [<mailto:agh@mweb.co.za>]
Sent: 06 February 2013 01:06 PM
To: Nico Theron; van der Merwe, Karl (Dr) (Summerstrand Campus North); Renier van Rooyen; George Van Schoor; Izak Jansen van Rensburg
Cc: Tania Visser
Subject: Extended abstracts

Goeiemiddag kollegas

Baie dankie dat julle bereidwillig is om op kort kennisgewing by die mini-konferensie betrokke te wees. Ek hoop werklik dat die geleentheid tot voordeel van almal sal wees. Die program is so ontwikkel dat elke studieleier 'n geleentheid het om te praat, en daarna volg die studente. Elkeen kry 10 [tien] minute plus 5 [vyf] minute vraetyd. Ons versoek julle om die aanbiedings so te ontwikkel dat dit die algemene strekking van julle werk weergee, sonder dat dit te wiskundig raak. Die meeste persone wat die funksie bywoon is ingenieurs, maar hulle is nie noodwendig spesialiste in u vakgebied nie. Daar sal ook o.a. persone van TIA, DST, DTI daar wees. Meer tegniese gesprekke kan later plaasvind tydens die netwerk geleentheid.

Sal dit moontlik wees om 'n "extended abstract" deur te stuur teen Vrydag, sodat ons dit kan bind en versprei. U samewerking sal werklik waardeur word.

Vriendelike groete
Andre' hattingh

ACTIVITY 3.2	
Participants ✓ Dr A Lourens ✓ Mr J Snyders ✓ R Connely (SCCDC) ✓ R Plaatjes (CTLM)	<p>Developing co-curricular interventions to improve student retention is one of the strategic goals of the Department of Industrial Engineering at NMMU. It aims to create seamless learning environments to holistically support and develop students in and outside the classroom. To achieve this, the responsibility for developing students' abilities is shared by academics and professional support services. This collaboration between academic and professional support services is embedded in a humanised approach aimed at providing supportive and affirming learning communities that enable students to reach their full potential and be successful in higher education.</p>
Participants ✓ Dr A Lourens	<p>Exploring the self-efficacy of engineering students at the NMMU (longitudinal study). It has been found that self-efficacy influences Women in Engineering Students (WES's) academic success. Through the establishment of Wela (women in engineering leadership association), co-curricular interventions were developed to improve WES's feelings of self-efficacy. The main problem addressed by this research project is to assess if the selected co-curricular activities are effective and successful. Therefore, the main research question is: Do co-curricular interventions improve WES's self-efficacy?</p>

Criteria 1: The impact and significance of the engagement activity.

Student retention and support has become an international initiative as the preparedness of students for Higher education on a global basis deteriorates yearly. The ever decreasing academic efficiency despite the application of modern technology is a huge financial burden for universities as students and their parents. The research activities embarked on by the department will significantly impact the throughput rate of students with a decrease in fall-out rate or alternatively put an increase in throughput rate and retention. Student self-image will be developed and more autonomous learning will be possible. Co-curricular development of students as been recognized and sought after by employers for a long time.

Criteria 2: The intellectual endeavors contributed by the engagement activity.

Academics are exposed to alternative teaching and learning methodologies as well as inter-personal relationship development which will enrich their academic task, improve their communication methods and reduce frustration rates. The work in progress to study how to improve the learning experience of female engineering students especially is very important i.t.o addressing representation and the scarce skills issues in engineering. Identifying which co-curricular activities are most relevant and valuable to the student will be an important aspect of this research

Criteria 3: Communication and dissemination of knowledge and expertise.

The research groups communicate electronically and in group sessions and share the data accrued and interpreted. The real value and associated issues of the interventions will be determined and fed into the higher learning society via journal article and/or conference papers. Co-curricular activities of students are documented and can be reflected on the academic results.

Criteria 4: The strategic importance of the role performed by the individual/team.

Cost effective interventions than can enhance learner experience, provide graduates with the required attributes and improve throughput rates are strategically important and the outcome of these two studies will therefore be most valuable to all institutes of higher learning.

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

The research in this field is fully supported in the department; school and faculty as many employers are trying to recruit female graduates and the fact that the financial viability is negatively impacted by poor pass rates. Co-Curricular activities have also been identified by NMMU as important to fundamentally develop students. The Department's co-curricular interventions played a major role in the successful Teaching and Learning Team Award application.

Criteria 6: The integration of engagement into the core academic functions.

Comprehensive student support and development strategies are continuously studied in an effort to improve student experience and academic efficiency. After data analysis, effective interventions will be implemented in the formal academic programmes via the study guides

Criteria 7: In the case of engagement through research and scholarship, the information referred to under Assessment Criteria (Criteria 7), where applicable needs to be provided.

The research proposal and methodology is well presented with ethical clearance received for the data acquisition required. Prof Bogue also provided access to intellectual property which will significantly add value to the research outputs. The first paper w.r.t Women self-efficacy has been accepted for international reading and is already in final draft format

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EXHIBITS

The exhibits below contain excerpts from a conference paper that was submitted and accepted for presentation at an international conference. This was based on winning the Teaching and Learning award in 2012. In 2013 the members of the team below attended the above mentioned international conference to present the paper.

REFLECTIONS TOWARDS ENHANCING STUDENT RETENTION APPROACHES IN ENGINEERING

EDUCATION FROM A CO-CURRICULAR PERSPECTIVE

AS Lourens: HoD, Industrial Engineering

RE Connelly: Senior Counselling Psychologist, Student Counselling

RC Plaatjes: Senior Academic Professional Developer, AD Unit

PJ Snyders: Academic, Industrial Engineering

Abstract

One of the strategic goals of a South African university in the Eastern Cape is to create seamless learning environments to holistically support and develop students in and outside the classroom. To achieve this, the responsibility for developing students' abilities is shared by academics and professional support services. This collaboration between academic and professional support services is embedded in a humanised approach aimed at providing supportive and affirming learning communities that enable students to reach their full potential and be successful in higher education. Research findings indicate that active involvement of students in the learning process during and after lectures is one of the key factors governing student success. Therefore, the aim of the collaboration is to equip students to manage the demands of their studies, to enhance their employability, and to sensitise them to the competencies and practices required in the world of work. This aim was achieved by developing co-curricular interventions, that included an early identification system, study skills and time management workshops, a workplace orientation workshop, improving writing abilities and a women in engineering leadership association. Another positive outcome of a collaborative approach is that it creates the opportunity for discursive spaces where teaching and learning practices are shared and understood which, in turn, fosters and supports the scholarship of teaching and

learning. This article reflects on the collaborative approach between the Department of Industrial Engineering (DoIE) at a South African university and two of the university's professional development departments and describes how the collaborative relationship developed over time. In addition, the article describes how co-curricular interventions were developed, supported and executed as an outcome of this collaboration.

ACTIVITY 3.3	Joint commercialisation of new product
Participants ✓ Dr A Lourens ✓ Dr K Van Der Merwe ✓ Mr A Louw ✓ Mr A Murray ✓ Prof JJ Pieterse	The Department in collaboration with Prof JJ Pieterse researched and published a text book titled 'Implementing Lean in South African Industry. This text is used extensively for Short Learning Programmes for Industry as well as a prescribed book for Work Study 3 for the undergraduate Industrial Engineering students

Criteria 1: The impact and significance of the engagement activity.

This text book has made a huge impact in the Teaching and Learning of Lean Management in South African industry and at NMMU and bears clear testimony of the value of active industrial engagement and the incorporation knowledge and experience gained from that in prescribed text.

Criteria 2: The intellectual endeavors contributed by the engagement activity.

It is evident from the text book that the writers and editor did thorough research when engaging with industry to establish not only the contents but also the cognitive level at which the text book is pitched. Both undergraduate Work study students and industry based SLP learners find excellent value in the text.

Criteria 3: Communication and dissemination of knowledge and expertise.

The knowledge gained through engagement and reading in preparation to write the text is well presented in the text with large numbers of additional reference sources that not only indicate the depth of the research but also stimulate and provide additional reading opportunities for the students

Criteria 4: The strategic importance of the role performed by the individual/team.

To have a localized South African text book which combines international best practice and South African experiences is of strategic importance to NMMU students as it will not only expose them to the fundamentals, it will also bring into play international practices and in so doing ensure that South African manufacturing is developing its processes in line with global competition.

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

The compilation of the text book has been well received as it is recognized by industry and NMMU for its value as prescribed text in the field of Lean Implementation

Criteria 6: The integration of engagement into the core academic functions.

The writing of the text book and the application thereof is a clear example of engagement practice through which the relevant research was done in parallel with extensive reading and which is fully implemented into core academic functions by means of a prescribed text book.

Criteria 7: In the case of engagement through research and scholarship, the information referred to under Assessment Criteria (Criteria 7), where applicable needs to be provided.

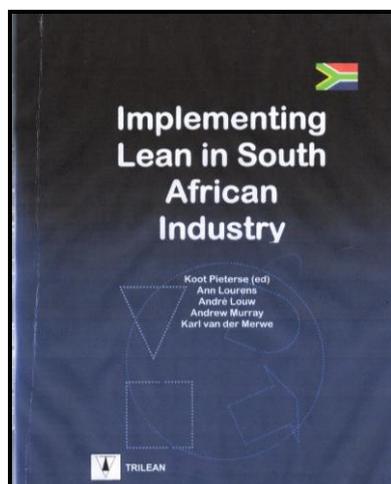
The reading and research through industrial engagement for the text book was well performed and documented in an excellent text which is conducive to undergraduate and SLP learning. The research and reading provides a good back ground of both theoretical research and practical application interwoven with numerous references to international practice which will stimulate readers to further explore the topic.

Contacts

**Trilean Publishing ,
PO Box 32097
Summerstrand
Port Elizabeth**

EXHIBITS

The exhibit below is a copy of the book jointly published by the above authors.



ACTIVITY 3.4	Monitoring and Evaluation
Participants ✓ Dr K Van Der Merwe	Dr K Van Der Merwe is actively involved with monitoring and evaluation at UMICORE where his engagement activity is to regularly monitor and evaluate their manufacturing processes through the application of Value Stream Mapping (VSM) and to coach their staff irrespective of whether they are administrative or production oriented. VSM is the combination and critical analysis of all processes (Value added or non-value added) that contributes to change material or components into final products. VSM is therefore an extremely valuable tool to ascertain and compare the competitive edge and production efficiency of manufacturing plant.

Criteria 1: The impact and significance of the engagement activity.

UMICORE is an international company specializing in engineering materials and has a total annual global revenue of 12,5 Billion Euros. It is of fundamental importance that the South African based plant must operate at optimum efficiency and financial viability to ensure continued operation and employment opportunities.

Criteria 2: The intellectual endeavors contributed by the engagement activity.

To serve as monitor and coach of Value Stream Mapping activities in such a critical manufacturing industry requires an excellent knowledge and experience base. Dr Van Der Merwe and his team must always be critically aware of current developments and be able to critically evaluate and judge the processes and be able to provide advice w.r.t improvement interventions.

Criteria 3: Communication and dissemination of knowledge and expertise.

Communication and dissemination of data, findings and knowledge is directly to the working/project committee of UMICORE. The knowledge and experience gained is obviously shared within the department and with under and post graduate students. Intellectual property rights however must always be observed when knowledge is shared

Criteria 4: The strategic importance of the role performed by the individual/team.

The task of Monitoring and Evaluating of VMS in such important strategic manufacturing plants significantly enhances the academic status of NMMU at national and international frontiers as all local reports are forwarded to international plants for scrutiny, evaluation and implementation where relevant

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

This monitoring and evaluation engagement process and the findings thereof has been well accepted by UMICORE as Dr Van Der Merwe's has been re-appointed in the role for the future

Criteria 6: The integration of engagement into the core academic functions.

The knowledge and experienced gained in this highly responsible monitoring, evaluating and coaching assignment bolsters Dr Van Der Merwe expertise and provides an excellent base for further research and teaching within this field. Hi leadership and expertise also empowers and supports his fellow colleagues.

Criteria 7: In the case of engagement through research and scholarship, the information referred to under Assessment Criteria (Criteria 7), where applicable needs to be provided.

The monitoring and evaluation done provides a rich and well documented data base for the compilation of research journal articles and conference papers. Currently Dr Van Der Merwe is building his expertise and data base which will empower him to produce such outputs in the near future.

Contacts

Michelle Sha
Manufacturing Operating Systems Coordinator
Umicore Catalyst SA(Pty) Ltd
041-4017421

EXHIBITS

The exhibits below highlights communication with Michelle Sha regarding monitoring and evaluation at Umicore.

From: Sha, Michelle [mailto:Michelle.Sha@eu.umicore.com]
Sent: 23 August 2013 09:02 AM
To: van der Merwe, Karl (Dr) (Summerstrand Campus North)
Subject: PDCA - Scheduling

Good morning Karl
Hope you are well, just want to ask you a question...we are currently busy with the big "Scheduling problem" Chris has started to have a few meetings on this and would like to use the PDCA as is in our booklet to try and solve this problem. We would just like to get your opinion on this, would this be the right approach for us? We would also like to meet with you sometime soon so he can discuss task given to him by our MD and how to address some of the items on his list...(all linked to scheduling).
When would you be available?

Please let me know.

Regards
Michelle Sha
Manufacturing Operating Systems Technician
Umicore Catalyst SA (Pty) Ltd
Direct Line: +27 41 4017421
E-mail: michelle.sha@eu.umicore.com

"When we face the worst that can happen in any situation, we grow. When circumstances are at their worst, we can find our best"

4. OUTREACH AND COMMUNITY SERVICE

Outreach and community service involves activities that contribute to the public good, upliftment and development beyond the University community and are informed by the staff member's expertise as an academic or practitioner and includes amongst others the following:

- 4.1 Participating in collaborative endeavours with schools, industry, Non-Governmental Organisations etc.
- 4.2 Disseminating information in popular and non-academic newsletters, radio, television and magazines in order to improve the quality of life of citizens/communities.
- 4.3 Engaging in sustainable community organisation activities and providing students opportunity to engage in volunteering and community service activities (discipline and non-discipline based).



ACTIVITY 4.1	Participating in collaborative endeavours with schools, industry, Non-Governmental Organisations etc
Participants ✓ Dr A Lourens ✓ Dr K Van Der Merwe ✓ Mr A Louw ✓ Mr A Murray ✓ Mr J Snyders ✓ Mr C Joubert	<p>The Department is actively involved with Schools and recently had successful exhibits and interaction at Pearson, Grey and Alexander road High Schools</p> <p>NMMU and discipline specific information packs are distributed to schools to facilitate career guidance and study selection of learners</p> <p>Industrial Engineering made presentations to the STEM (SANRAL sponsored) Laboratory on the Missionvale campus as well as to the Extended programme students on North Campus</p>

Criteria 1: The impact and significance of the engagement activity.

The impact of engagement with schools, industry, Non-Governmental Organisations etc is extremely important and can be measured i.t.o the improved success that NMMU have in recruiting qualifying first year students. Both students and parents value engagement with the university to gain insight of possible careers and study fields as well as the social, financial issues

Criteria 2: The intellectual endeavors contributed by the engagement activity.

Very important career and course information is compiled and creative brochures and marketing material is produced that effectively facilitates the transfer of the relevant information to prospective students, parents and teachers. The information compiled is done in a sensitive and ethical way without misrepresentation or bias.

Criteria 3: Communication and dissemination of knowledge and expertise.

With the aid of Corporate affairs colleagues, appropriate audiences are investigated and selected for the marketing processes and suitable material is then selected and prepared.

Criteria 4: The strategic importance of the role performed by the individual/team.

It is strategically and fundamentally important to reach out to communities from which students are recruited to ensure that the best possible students are recruited and retained. It is also important to render support services (career guidance counseling etc) which will support the values of NMMU and in that way foster good social standing and concretize NMMU as a preferred provider of Higher Education

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

Prospective students, parents and especially the disadvantaged schools as well as industry value the interaction with universities and in general is very hungry for the opportunity to interact with staff and senior students. NMMU also values such activities, however the funding levels for such activities are completely inadequate to address the need

Criteria 6: The integration of engagement into the core academic functions.

Close interaction with schools and prospective students alerts the academics to the needs of the learners i.t.o career guidance, preparedness and therefore empowers academics to be more attuned to first year students and their respective issues that could possibly hamper their studies.

Contacts

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EXHIBITS

The exhibits below is a copy of the programme for the AECDP Winter School that the Department was involved in, as well as emails relating to WELA's involvement.

AECDP WINTER SCHOOL PROGRAMME 2013

WEEK 1: MONDAY, 1 JULY 2012 TO FRIDAY 5 JULY 2012

MONDAY, 1 JULY 2012

INTRODUCTION & LEGO GAME			
Date	Time	Venue	Module
<ul style="list-style-type: none"> All staff to be present to be introduced Peer Helpers to be introduced 			
Monday 02/07/2012	09h00	Senate Hall – M Block, 2 nd floor	General introduction: resented by: Mr Karl du Preez and Eunice Nortje
	10h30	Tea time	
	11h00	Senate Hall – M Block, 2 nd floor	Industrial Lego Game: Presented by: Jaco Snyders & Cobus Joubert
	13h00	Lunch	
SURFING THE WEB			
	14h00	M104/107 Computer laboratory North Campus	Presented by: Ronald Leppan 1. Introduction to Computers 2. File Management
	15h30	Afternoon Tea	
	16h00	M104/107 Computer laboratory North Campus	Surfing the Web (continued) 1. Introduction to Microsoft Internet Explorer 2. Introduction to the world wide web 3. Organizing favourites 4. Search Engines
	18h00	Dinner	



ACTIVITY 4.2	Disseminating information in popular and non-academic newsletters, radio, television and magazines in order to improve the quality of life of citizens/communities.
Participants ✓ Dr A Lourens	<p>The department has published a variety of informative brochures regarding full time and part time studies in Industrial Engineering, Operational Management and Quality control. The department further also compiled and published the “Inspirational Students” and “Inspirational Women” glossy booklets in which the achievement of students and women in various disciplines of engineering are showcased and honoured.</p> <p>An article in collaboration with Nicky Willemse a freelance writer w.r.t the recruitment and issues surrounding women students and graduates were published in the Mail & Guardian of 19-25 October 2012</p>

Criteria 1: The impact and significance of the engagement activity.

The disseminating of relevant information is important to drive the achievement of objectives. The department has been very successful in growing various interventions and activities including amongst others the Women Engineering drive and the status building and promotion of Lean Manufacturing expertise.

Criteria 2: The intellectual endeavors contributed by the engagement activity.

The booklets published are very innovative and creative as it through the showcasing of success, provides role models and inspirational motivation. It furthermore provides the reader with background intelligence that will facilitate career choices and advancement. The body of knowledge

transferred in the text is ample and is very stimulating as well as motivating.

Criteria 3: Communication and dissemination of knowledge and expertise.

Through the relevant publications(Brochures, booklets and media releases) the knowledge developed by the related activities are effectively disseminated in an easy and stimulating to read way. The literature is distributed to wide audiences in schools, industry and commerce as well as through the relevant SETA,

Criteria 4: The strategic importance of the role performed by the individual/team.

The department clearly understands the strategic importance of the activities and is committed to ensure sustainable success in all their ventures. The current successes achieved are firm indicators of the regional, national and international effect of the activities

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

The impact of the published literature are well recognized by both regional and national stakeholders such as industry, students and the relevant SETA (merSETA) who is also sponsoring some activities due to the importance of achieving successful intervention. Many international collaborators have also complimented the department on their activities and publications.

Criteria 6: The integration of engagement into the core academic functions.

The engagement i.t.o dissemination of information in this activity provides a key to prospective students (especially female) to open the door to undergraduate studies in the field of engineering and the research outputs gathered to date will form the basis of many future articles/ papers and spin off research projects

Contacts

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Regards,
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EXHIBITS

The exhibits below include the WELA Inspirational Women booklet, Inspirational Students booklet, an excerpt from one of the participants in the Inspirational Women booklet and an article that appeared in the Mail and Guardian.

Feedback

Mamduka Msimanga - Civil Engineering student
Wela has been an awesome stepping stone for me. Through wela I learnt about networking and I had the opportunity to go to Cape Town as one of the selected delegates. Here, I met phenomenal women in the Engineering industry who helped in changing my views and plans for the future. If it weren't for wela I would not have known of a brighter future.

Priscilla Wells - Purchasing Manager Federal Mogul
The association is very encouraging and inspiring.

Sophene Okunde - Mechanical Engineering student
Wela has made me realize that we do women have to be leaders of today and tomorrow. We have to care for other people while at the same time changing the world by believing in ourselves. We can do anything and have to make good choices. Success will be the reward.

Thandile Ndlovu - Intern at H&M
I am not yet born. I fit me with enough spiritual issues that would cause my humanity, would drop me into a lethal outcome, would make me a cog in a machine, a thing with one face, a thing, and against all these who would dissolve my entity, would show me like a broken-down tiller and tiller or tiller and tiller that would lead to the hands would spill me. Let them not make me a stone and let them not spill me. Otherwise I'll die.

I chose this place because it symbolizes the hope that I have daily. Do I follow what is the norm in society or do I follow my calling? It boils down to choices. We all make choices from the moment we are born in this world. To live, to learn, to teach, to assist and surely there are many more choices.

Recently wela hosted 'The 7 choices of successful women' and with all that was said that day the word choice rang in my mind. I chose engineering because I followed my calling. I chose to join wela because I followed my calling. I chose to attend that workshop because I wanted to grow into being a successful woman. The wela organization is so significant because it allows me to grow into the woman I've always wanted to be but I had always settled, settled into being a machine, a one faced robot of what I thought people wanted to see. I didn't play to my genius.

But most importantly wela has allowed me to discover my VOICE.



For more information on wela or any of the engineering disciplines within the School of Engineering, please contact:

Nicole Truter - Project Coordinator
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wela is proudly supported by




inspirational women

The women in engineering leadership association (wela) is one of five projects initiated and managed by the merSETA Chair in Engineering Development.

merSETA together with Nelson Mandela Metropolitan University initiated the wela programme with the aim of empowering young female engineering students at the institution. The club has recognized the importance of promoting and developing women into the emerging field and to market it as a desirable career option.

It's the intention of wela to focus on academic, professional and personal development of women in engineering and be of service to the community.

VISION
to be recognised as the first choice University for supporting Women in Engineering.

MISSION
to offer a diverse range of support and developmental services to Women in the field of Engineering.

GOALS

- Establish Engineering as a desirable career option for girls and Women.
- Develop retention and growth strategies for Women already studying in the field of Engineering.
- Mentor, assist and advance Women already in the field of Engineering.
- Focus on academic, professional and personal development and be of service to the community.

The wela logo is a metamorphosis from mechanical to organic shapes. The mechanical shape symbolises engineering, while the organic, lower line shape represents humanity. The logo symbolises the inclusion of young women, respect for their members to grow into successful engineers. It also represents the evolution of an idea from the initial concept phase to the final realization of an engineering project. The logo indicates the association's initiative to change the engineering sector and establish a support structure for women in engineering. Wela is the place where we change/transform.

encouraging and inspiring
wela



2012 wela activities

Bronze passport members

- Launch
- Student counselling/developmental workshops
 - True colours
 - Strengths and weaknesses
 - Aspirations
 - Portfolio development
- Chola Ramona workshop
- 7 Choices workshop

Silver passport members

- Portfolio presentation/prize giving
- Membership
- Leadership
- Technical project
- Lean workshop
- Project management

Formal planned activities for all wela participants

- Self defense
- Panel discussion
- Personal care

Working wela's

- 7 Choices for successful women
- Being a woman in the workplace
- Dialogue with your partner
- Project Management
- Lean Workshop

Bursaries are also made available to wela students.

Muscling in on the boys' club

More women are making their mark in the traditionally male domain of engineering

Nicky Willemse

Engineering is still a traditionally male-dominated domain, but women making their mark in this field say anyone can do it, provided they have a passion for their profession and work hard.

"Our tools are computers, not mallets and don't let anyone make you believe otherwise," said Ashley Kleinhans, a "think blue" engineer at Volkswagen in Uitenhage.

Kleinhans, who is completing her doctorate in neuromorphic engineering in the mechatronics department at Nelson Mandela Metropolitan University in Port Elizabeth, works on projects that will "increase efficiency and decrease our effect on the environment".

She is one of the 10% of female engineers in South Africa – and believes that men and women should learn to work together. "Men and women are not in competition. If they can figure that out and start

"In my job you require common sense, an ability to make decisions – most of which are not very popular – determination and very broad shoulders."

Spar Eastern Cape project controller Ntombi Ntuli is combining her industrial engineering skills with project management to improve working standards in the company's distribution warehouse. Every day she prints out workforce productivity reports from the previous day and uses these to "ascertain trends in overall performance and try to find ways of improving working conditions, which in turn lead to improvement in performance".

"Physical strength doesn't count for much any more, but using your intellectual ability and analytical skills counts for everything."

Zukiswa Dikana, a parts quality engineer at Mercedes-Benz in East London, said women were "gaining ground" in engineering environments.

"Women have to work extra hard



Alison Rademan and Ashley Kleinhans see no reason why women and men should compete and believe they should work together instead

also need a passion for quality in all spheres, from ensuring compliance to specifications using statistical methodologies to the human aspect of teamwork, encouraging learning and continuous improvement."

Sarisha Hurrissunker, a junior civil engineering technician at Aurecon in

Port Elizabeth, said her role involved assisting her project leaders in the design of civil engineering services, producing drawings, measuring quantities for cost estimates on different projects and the administrative duties that accompany the design tasks.

"I am largely responsible for creating the environment I work in. My approach is that I am here to learn and gain experience from my colleagues. We should not want to prove which gender is superior but understand that both rely on each other's strengths to be successful."

Lourens said: "Women are making a significant contribution towards engineering in South Africa, largely due to their perseverance, drive and will to succeed. Along with being just as qualified for the job as their male colleagues, they also bring with them a range of skills unique to women, which adds to their success."

"Their inherent female intuition allows them to offer new perspectives that are out of the box and their ability to multitask enables them to competently manage several projects at the same time."

"Women don't have to prove themselves; their work will. But they should be confident and tenacious and persevere."

Nicky Willemse is a freelance writer contracted to Nelson Mandela Metropolitan University in Port Elizabeth

Inspirational Women in the Eastern Cape booklet (working wela women)

Showcases ten women in various engineering related fields in a variety of industries (yearly publication)



Inspirational Engineering Students booklet (senior wela girls)

Showcases ten senior wela students –reflective articles (yearly publication)



Questions (please be as elaborate as possible):

• **What do you do?**

I manage and commercialise the Intellectual Property of Nelson Mandela Metropolitan University. Basically this means that I encourage academics to think about patenting their research. Then I get the patents out into industry so they can be turned into useful products or processes – a process called “technology transfer”. However, not all Intellectual Property concerns patents, so I also ensure that the IP rights of the university are protected in research contracts we do with outside parties. We have to make sure we aren’t prevented from using our own research.

I am also involved in a lot of regional and national initiatives in this field so I arrange workshops and conferences nationally to train people, as well as work on ways to bring people together to create an innovation system in the region. I am also assisting other universities in the region to start their technology transfer activities.

• **What is most challenging about your job? Or, what is the most challenging part of your job?**

The most challenging part of my job is to keep all the balls in the air. I deal with so many different projects, different people and different contracts that I have to keep very good track of things – I think I have a filing cabinet in my brain! I also try and respond very quickly to people who have e-mailed me or requested something, but if all the projects or people need something at once it becomes tricky! And of course the people who are waiting for an answer don’t always understand that I am working on so many things at the same time, so they wonder why I haven’t finished writing their contract.

However, these challenges also mean that I am always doing different things and learning new things, so I don’t have time to get bored. I can also decide to pursue a particular project if I choose and it is not a problem as my activities are not cast in stone beyond a few requirements.

• **Describe a typical day**

There is no such thing as a typical day! I could be in a formal committee meeting, arranging a workshop, discussing a patenting strategy with a patent attorney, meeting with an academic to discuss their latest invention, drawing up a research contract, editing a research contract, starting a company, attending a company board meeting, writing a report, having a teleconference with the UK, writing a business plan, or travelling locally or overseas. Every day is different and most days are interesting and exciting.

Last year I spent a large amount of time travelling locally as there is so much happening in this area nationally as new legislation was promulgated last year. The national technology transfer community is very close knit, so we interact frequently to advise and learn, and the more experienced people also spend time helping new entrants to the community.

• **What advice would you give to women entering a male-dominated career environment or to those considering a career in a male-dominated field?**

Don’t let gender be an issue and don’t be a victim! I don’t allow the possibility that someone is treating me differently because I am a woman, even enter my thoughts. I enter discussions and meetings with this attitude. In one of my first jobs as a young engineer in 1995, I provided operations support for the commissioning manager of a new plant. I could see that some of the older contractors were taken aback but, once we’d had a meeting or two during which I completely ignored all comments that were not work-related, and ignored any looks or attitudes, we all got on fine. One needs to adopt a-bull-in-a-china-shop attitude sometimes – plough ahead regardless!

• **What do you do when you are not at work? (Hobbies etc)**

I do a fair bit of reading, and would like to start dancing again, but this is a very intense phase of life and career, so I battle to find a lot of personal time. My work is very time consuming and I do a lot of work after hours. One of my children is in Grade 7 and the other in Grade 9, so their activities also take up a lot of time. I have also started writing my proposal for my doctorate.

It is sometimes a struggle to fit it all in and I think I will need to take stock of my involvement in various things this year, as I tend to add activities but nothing falls off!

- **What do you need for your current position (characteristics and qualifications)?**

There are no formal qualifications for doing technology transfer, but most positions require a postgraduate degree in a scientific or technical field and a business qualification. An engineering degree is really useful as you have a broad understanding of many technical areas and can understand the purpose of an invention without knowing the details, and can often see the practical use for an invention. However, a person with a science degree and some industry experience can also make a good tech transfer person.

A business qualification is helpful because it gives you a broad understanding of business issues and helps you to speak the language of industry. I often feel like a translator between academic research and the legal profession, as well as between academic research and industry.

A person who enters this field must generally be able to think quickly, make decisions without perfect information, get a “feel” for something and go with it, and understand that relationships are the most important thing of all. A good contract will not survive a bad relationship.

- **What are your goals for the future?**

My personal goal is to finish my doctorate and my professional goal is to see some of the small businesses we have created really take off. These businesses are already making a difference to the local economy and it is so heartening to see the fruits of academic research driving economic development and not being left on dusty shelves.

- **What is it like being a female in a typically male dominated environment?**

My current position is not male dominated, although the first two jobs I had shortly after graduating were definitely male dominated, and my studies were also male dominated. I don't remember having a problem, although one sometimes needed a thick skin to ignore comments and jibes. One needs to give as good as one gets, though, and not be a victim.

- **If you weren't in your particular career what would you be?**

Lecturing and doing research at a university. Soon after I got involved in managing research, which led me to this career, I considered going back to a university engineering department as a lecturer. It is still something I would like to do but now I would probably lecture and research in technology commercialisation and not engineering.

ACTIVITY 4.3	Engaging in sustainable community organisation activities and providing students opportunity to engage in volunteering and community service activities (discipline and non-discipline based).
Participants <ul style="list-style-type: none"> ✓ Dr A Lourens ✓ Dr K Van Der Merwe ✓ Mr A Louw ✓ Mr A Murray ✓ Mr J Snyders ✓ Mr C Joubert 	<p>The department is actively involved in facilitating the engagement of students in community service and social responsibility activities. Recent activities include the following:</p> <ul style="list-style-type: none"> ✓ The adoption of Excelsior primary school. The school was provided by food parcels and other items collected from colleagues at a regular basis. Furthermore, the Park Drive Retirement center was involved to knit Beanies for the learners using donated wool. ✓ The MTR Smit Children’s home was supported in collaboration with NOSA to arrange a Christmas tree function for over 100 orphans ✓ The Red Sock Charity Golf day was supported to raise funds on behalf of the Urban Sky trust for Hannah Goddard to undergo surgery ✓ The students also supported the Reach for a Dream project “Reach for your slippers” ✓ The students are supported in a project identified to beautify and provide an environment for living and learning between the North Campus C and E block. This project is initiated to provide water harvesting and storage for the intended Campus boma which will also include charging facilities etc for cell phones and laptops.

Criteria 1: The impact and significance of the engagement activity.

The Vision and Mission of NMMU cannot be achieved if graduate attributes does not include social responsibility and good citizenship. These extra-curricular activities add significant value to the holistic development of the students and also firmly establishes NMMU as a new generation university that values its community

Criteria 2: The intellectual endeavors contributed by the engagement activity.

Active social involvement entrenches in the students attributes which are not taught as part of the official curriculum. The knowledge transferred in this type of engagement is best experienced through guidance and practical exposure. Aspects of such activities are interwoven into suitable modules to enrich the learning experience

Criteria 3: Communication and dissemination of knowledge and expertise.

Engagement of staff and students in community related activities facilitates develop verbal, writing and interpersonal communication skills at all levels of audiences. Analysis of such community activities once adequate data is available can identify tools for future assessment of activity efficiency both for the sake of the academic project as well as for the interest of the community at stake

Criteria 4: The strategic importance of the role performed by the individual/team.

It is in the interest of NMMU and the community that community service projects are identified and participated in on a professional and responsible basis. The academic department therefore has to critically evaluate each activity i.t.o its value to the community and the return on investment w.r.t time and effort spent. Students must also be shown how to evaluate such projects to ensure that community support is not only valuable but also sustainable

Criteria 5: The extent to which the engagement activities are acknowledged/recognized.

As South Africa is a land of extremes i.t.o the wide gap between poor and rich, community service is well received and acknowledged depending on the quality of service rendered. The department has received many accolades for community service which also contributes to the value image of the NMMU brand.

Criteria 6: The integration of engagement into the core academic functions.

Aspects of community service is designed into curricula via Critical Cross Field Outcomes (CCFO's). As the information base w.r.t community service rendered by an engineering department grows, research output would be able to predict how these activities can be improved and how the graduate attributes can best be assessed through such participation.

Contacts

Contacts :

Excelsior school

Urban sky trust Janet Pereira 0836075151

Reaach for a dream

Karl Du Preez Water harvesting

EXHIBITS

The exhibits below highlight the Department's involvement in community engagement projects.



Dear Faculty Colleagues

Can you believe it's that time of the year again and before long we will be hearing jingle bells in the air!!!



There are many charitable drives and initiatives that are currently being undertaken within our faculty which is very commendable and appreciated.

This year our faculty will be embarking on a Charitable Christmas Drive and are cordially inviting all our faculty staff members to come on board and share in the true sense of "giving and sharing".

We have identified and have been working with an HIV/AIDS orphanage in Zwide this year, *The Laphumilanga Care Centre*, which is in much need of assistance. One of our active FSAF (Faculty Student Academic Forum) members, Sephiwe Dlamini has been doing voluntary work there and we also have Mr Karl Du Preez and his team involved in this initiative.

A brief background history of the Orphanage: -

The *Laphumilanga Care Center* was opened in 2008 and was operational till September 2011 and had to have its doors closed as the orphanage guardian, Ms Nikiwe Nyamakazi only had a NPO certificate

and no Child Care License. She has now applied for the license so that the orphanage can satisfy all legal requirements by Social Development before opening its doors once again, hopefully very soon.

Before the care center closed down it was making an extremely progressive difference to the lives of approximately 42 children, aged between 6 months - 7 years. Due to the center being closed these kids have been placed in various foster homes until the center opens its doors again.

The proposed plan is to assist Ms Nikiwe Nyamakazi and her team by organizing a Christmas party in early December, where gifts and food hampers can be distributed to the underprivileged orphans.

The request is for you to please donate something that will contribute to this initiative. You have the choice to donate either in cash or kind.

The departmental secretaries will be asked to collect these items and send through their collections to Farren and Kumi at the Deans office, by 26 November 2012.

PS: There has been a request for educational and stationery items for the children, e.g. crayons, coloring books, etc. If you decide to donate toys please let it preferably be for age groups between 6 months – 8 years. Other items such as clothing (new or second hand), and other common and general use toddler and foundational phase necessities will also be welcomed. We will be requiring items for approximately 20 girls and 20 boys.

The Deans office will be making the gift hampers and will take care of the other practical arrangements with the assistance of the FSAF and other interested parties.

We look forward to your contribution in making this charitable drive a great success and guaranteeing big smiles on the faces of these tiny tots.

Warm Regards

The Deans Office



Dear All

A recent survey to identify nutritional and basic essential needs of our students was conducted by Dr Sarie Snyders. The results indicated that a total of 218 out of 368 students do not have sufficient funds for 1 meal a day and/or basic essential needs (soap, toothpaste, etc). As the final test and examination periods is fast approaching, we would like to assist our students in need.

Contribution to this cause in the form of the following, for example:

- Pilchards in tomato sauce (tins)
- Mix vegetable (tins)
- Peas (tins)
- Peanut butter
- Jam- apricot if possible

- Soap and toothpaste
- Any other item you wish to donate (i.e. dry ingredients i.e. soap, noodles, etc) would be welcome.

Thank you for your kind consideration and assistance. Contributions can be delivered to C234 from Wednesday morning, thank you.

Kind regards
Zandra



27 June 2012

NMMU
Port Elizabeth
6000

RE: RED Sock Charity Golf Day

Dear Sir

We would like to take this opportunity to thank you on behalf of the Urban Sky Trust and Hannah Goddard for your support in the RED Sock Charity Golf Day held at the PE Golf Club on the 26 June 2012.

Keep updated on Hannah's progress on www.urbansky.co.za

Yours sincerely

A handwritten signature in black ink, appearing to be 'JP' or similar initials.

Janet Pereira
Urban Sky Trust
janet@urbanlava.co.za
Cell: 083 607 5151

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Contact Person: Janet Pereira (janet@urbanlava.co.za)
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