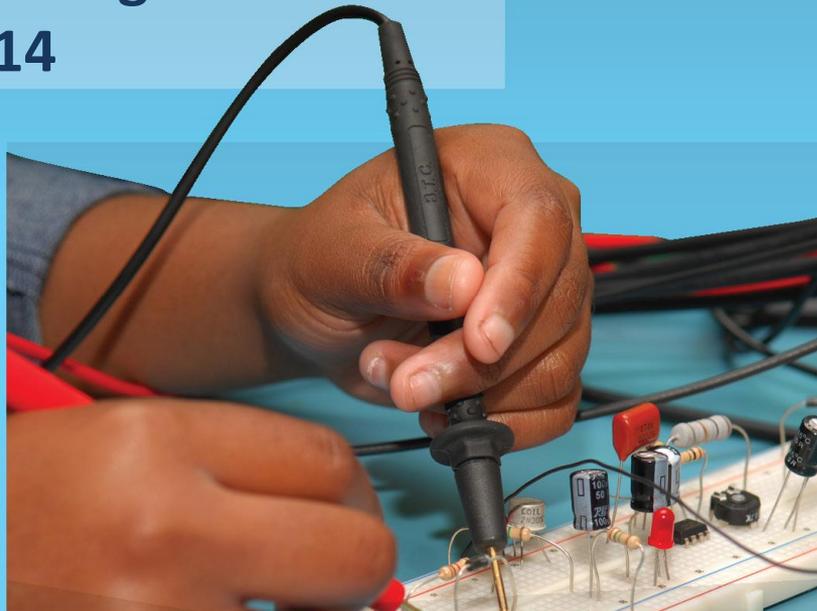


Faculty of Engineering, the
Built Environment and Information Technology
Technology for tomorrow

 **Nelson Mandela
Metropolitan
University**
for tomorrow

Engagement Colloquium: Department of Industrial Engineering 2014



CONTENTS



- ✓ **Department of Industrial Engineering: Engagement**
- ✓ **Customised training and short learning programmes:**
- ✓ **Unit for Lean Process Development**
- ✓ **Interventions: Women in Engineering Leadership Association (WELA)**
- ✓ **Establishment/initiation of your project**
- ✓ **Beneficiaries/target groups**
- ✓ **Internal/external partners/stakeholders**
- ✓ **Engagement activities adding value to the Teaching and Learning, Research and Service activities?**
- ✓ **Approaching and/or achieving trans-disciplinary exchanges and co-operation within NMMU**
- ✓ **Challenges in implementing Engagement**
- ✓ **Benefits of Engagement**
- ✓ **Greatest lessons learnt about Engagement in Higher Education**

DoIE: Engagement



Professional & discipline based service provision

Teaching & Learning



Outreach & community service

Research & scholarship

Customised training and short learning programmes



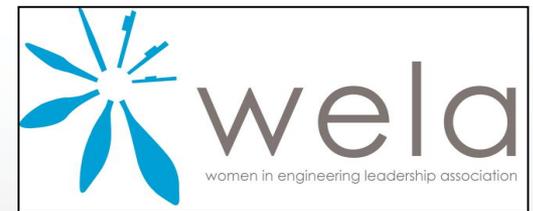
1. General short learning programmes
2. Company specific:
 - Conti International training (Jaco & Cobus)
 - Industry partnerships incorporating Introduction to operations management (Conti, Hereaus, Schnelleke, Welfit Oddy) (Ann)
 - VWSA (Karl)
 - Umicore (Karl)
3. WELA leadership development programme (LDP)



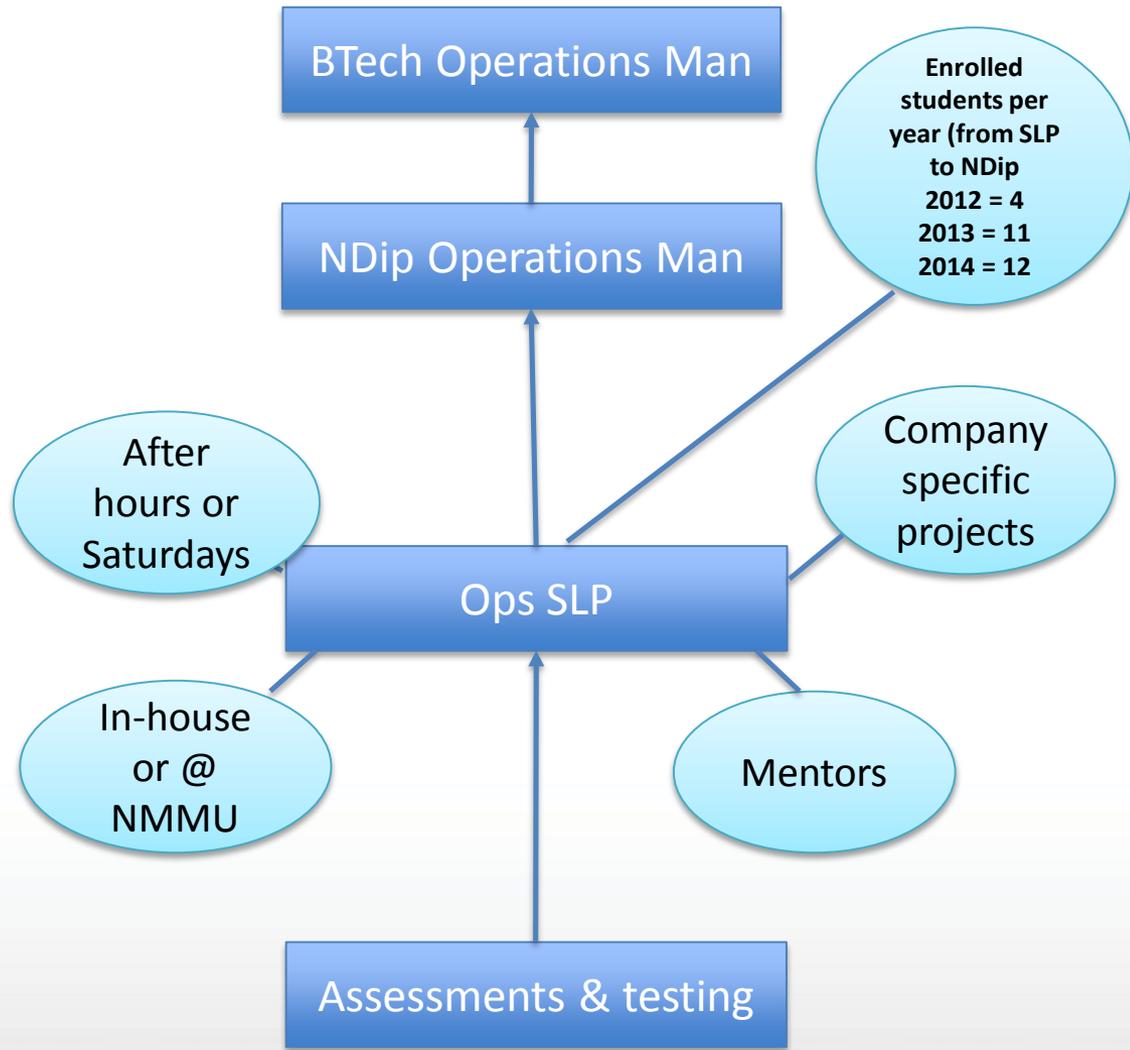
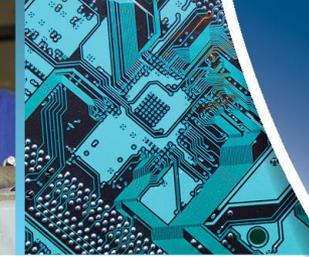
Continental Tyre in Hannover, Germany



Lean Practitioners Programme SLP presented to VWSA



Customised training and short learning programmes: Industry partnerships incorporating Introduction to operations management SLP



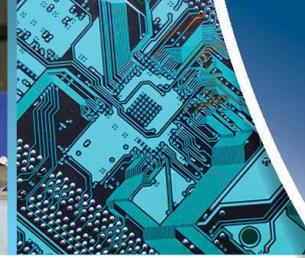
CONTINENTAL SLP



- ✓ SLP: Industrial Engineering (Lean and Work Study) – 2013
 - ✓ Travelled to 3 countries (Germany, USA & Slovakia)
 - ✓ Trained 35 Continental employees over 4 weeks (Jan 2014 and Jul 2014)
 - ✓ Employees represented 10 Continental factories (10 countries)
 - ✓ Facilitated strategic session for 17 Industrial Engineering managers
 - ✓ Managers represented 12 Continental factories (12 countries)
 - ✓ Each student completed an improvement project and exam as part of the SLP
 - ✓ Exam consisted of a Continental specific case study and videos for analysis
 - ✓ Estimated project savings equalled € 1.3 million at a cost of € 250 thousand
 - ✓ NMMU certificates issued to 18 students who met criteria
-
- ✓ In the process, we experience training in the universal language of Industrial Engineering across the language barrier in a pursuit of continuous improvement.
 - ✓ Experienced different cultures, nationalities, languages, countries and snow
 - ✓ Experienced 2 of the biggest Continental Tire factories in the World (USA and Slovakia), with high levels of automation.



CONTINENTAL SLP



Hannover, Germany



Puchov, Slovakia



Puchov, Slovakia



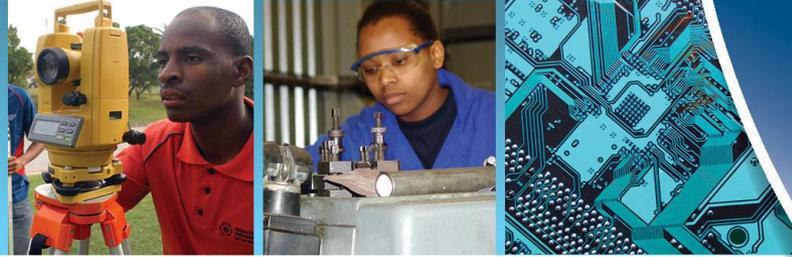
Unit for Lean Process Development



- ✓ Volkswagen SA
 - Development of Problem Solving Teams
 - Lean Practitioner (24 Qualified – 12 day programme)
 - Value Stream Mapping
 - Research (Energy value stream mapping)
- ✓ Umicore Catalyst SA
 - Lean Implementation
 - All employees through lean induction
 - Lean Practitioner (10 qualified – 12 day programme)
 - Developed a Problem Solving course for team leaders
 - Research (Forecasting in extended the supply chain)



INTERVENTIONS: Women in Engineering Leadership Association



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 women engineers through their studies and personal growth and development)
- ✓ **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.

wela
Women in Engineering
Leadership Association

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

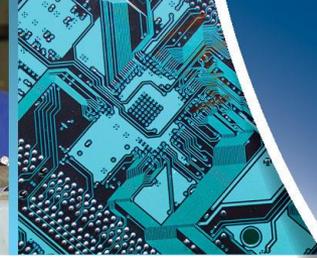
Contact: **Nicole Truter** - Project Coordinator
School of Engineering, NMMU North Campus
Tel: +27 (0)41 504 3137 • Fax: +27 (0)41 504 9137

www.nmmu.ac.za

WELA LDP

ACTIVITIES	TYPE	GROUP	DATE
Portfolio building	Workshop	1	Attendance & Included in portfolio
Team building	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		1	Portfolio and written piece to appear in booklet
Panel discussion	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, project leader & included in portfolio
Factory visits	ENG PRAC	1/ 2/3	Attendance & Included in portfolio
Mentorship	Workshop	2	Training,ten meetings, portfolio
Leadership practice	SLP	3	Attendance & Included in portfolio
Presentation skills	Workshop	2/3	Attendance & Included in portfolio
Job interviews	Workshop	2/3	Attendance & Included in portfolio
Self-leadership	SLP	2	Attendance & Included in portfolio
Lean (1 day)	SLP	2/3	Project, Attendance & Included in portfolio
Project management	SLP	2/3	Project, Attendance & Included in portfolio
Portfolio		2/3	Submit portfolio for final assessment to qualify for certificate

WELA



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Reflections from students and industry

‘WELA has allowed me to discover my voice’

‘WELA has been an awesome stepping stone for me’

‘I met phenomenal women in the Engineering Industry who have helped in changing my views and plans for the future’

‘We can do anything and have to make good choices, success is the reward’

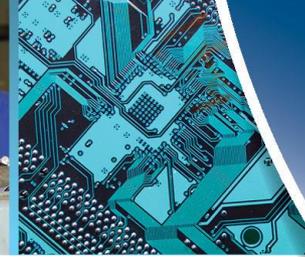
‘This association is very encouraging and inspiring’



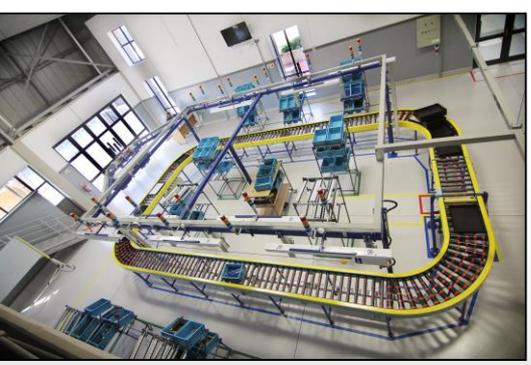
A metamorphosis from mechanical to organic shapes. The mechanical shape symbolises engineering, while the organic flower-like shape represents femininity. The logo symbolises the evolution of younger women, moulded by their mentors to grow into successful engineers. It also represents the evolution of an idea from the initial concept stages to the actual realization of an engineering project.

Wela is the Xhosa word for Change/transition.

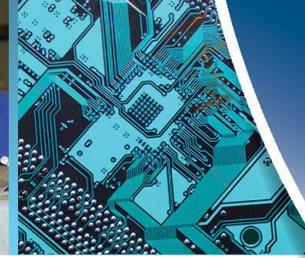
What led to the establishment/initiation of your project?



GENERAL SLPs	COMPANY SPECIFIC	WELA LDP
<ul style="list-style-type: none">✓ Company requests✓ Research (registration form)✓ Close industry links✓ Advisory committee	<ul style="list-style-type: none">✓ Company requests<ul style="list-style-type: none">○ Good reputation○ Good students○ Good relationships○ Good customer service○ Specific training and development needs in industries/companies	<ul style="list-style-type: none">✓ National & international awareness✓ merSETA funding✓ NMMU values✓ NMMU graduate profile✓ Research



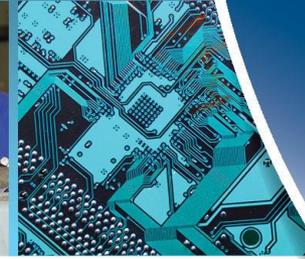
Who are your beneficiaries/target groups?



GENERAL SLPs	COMPANY SPECIFIC	WELA LDP
<ul style="list-style-type: none">✓ General public✓ External stakeholders✓ Companies<ul style="list-style-type: none">○ Mostly in Manufacturing and in certain service industries○ In the field of Operations Management, Industrial Engineering and Quality	<ul style="list-style-type: none">✓ Companies✓ Consulting agencies 	<ul style="list-style-type: none">✓ Women Engineering students✓ Female learners✓ Working women✓ Companies<ul style="list-style-type: none">○ Mostly in Manufacturing and in certain service industries



Who are your partners/stakeholders (a) internally at NMMU and (b) externally?



GENERAL SLPs

COMPANY SPECIFIC

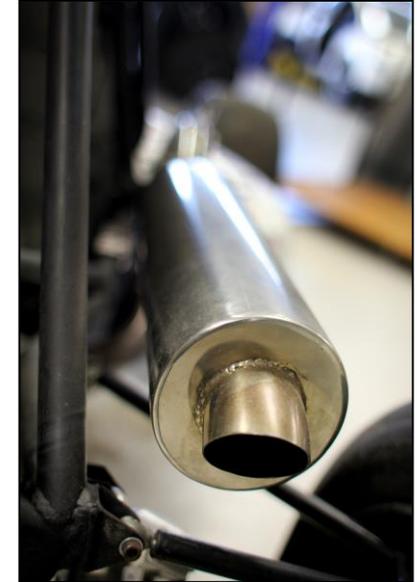
WELA LDP

Internal

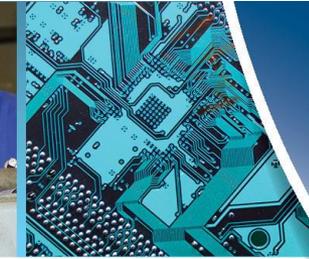
- ✓ Service subject partners
- ✓ Short course department
- ✓ Students

External

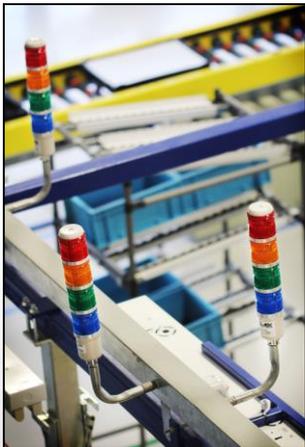
- ✓ HR managers
- ✓ Part time lecturers
- ✓ Training coordinators
- ✓ Manufacturing managers



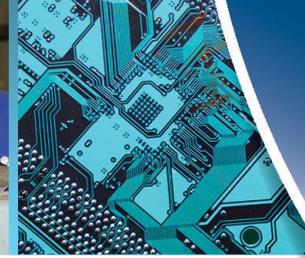
How do your Engagement activities add value to your Teaching and Learning, Research and Service activities?



GENERAL SLPs	COMPANY SPECIFIC	WELA LDP
<ul style="list-style-type: none">✓ Research opportunities✓ Student retention✓ Journal articles✓ Paper presentations✓ Collaborative R&D projects✓ Student development✓ Lecturer development		



How do you approach and/or achieve trans-disciplinary exchanges and co-operation within NMMU?



GENERAL SLPs

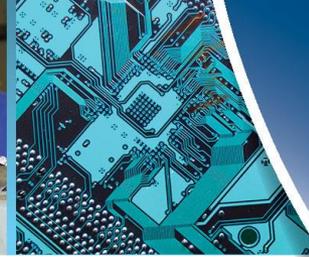
COMPANY SPECIFIC

WELA LDP

- ✓ Joint R&D projects
- ✓ Collaboration with service subjects and departments
- ✓ Research opportunities
- ✓ Mutual benefits



What do you experience as the greatest challenges in implementing Engagement? And what can be done to assist/enable your project/engagement activities?



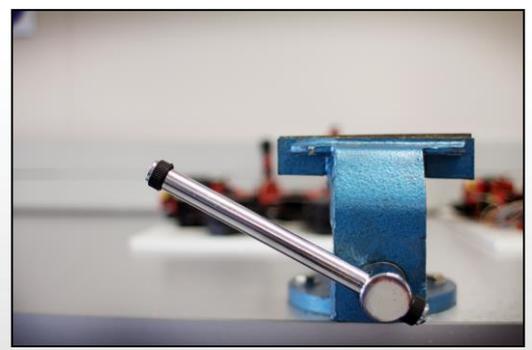
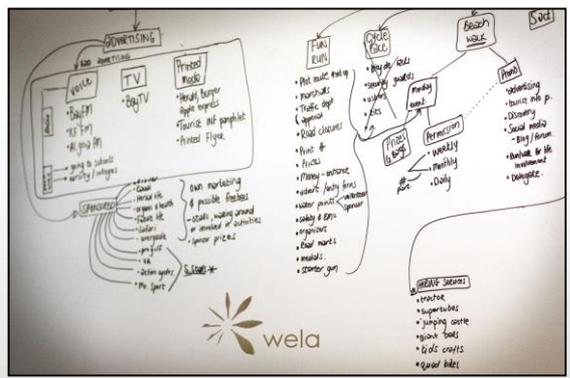
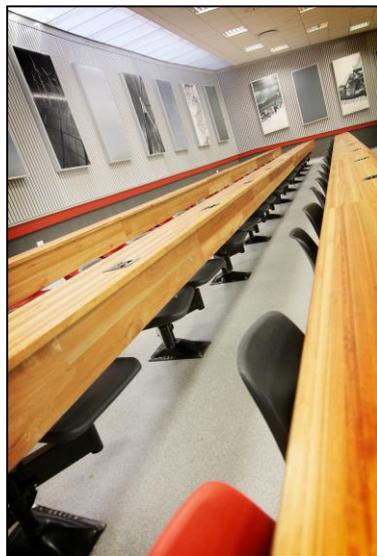
GENERAL SLPs	COMPANY SPECIFIC	WELA LDP
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CHALLENGES

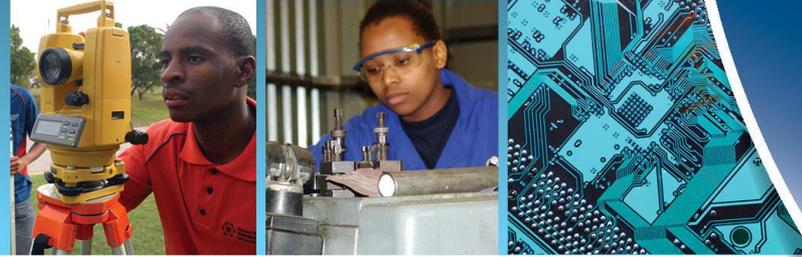
- ✓ Staff capacity
- ✓ Funding
- ✓ Red tape/Bureaucracy

NEEDS

- ✓ Additional funding
- ✓ Increased staff capacity



What do you experience as the benefits of Engagement and how do you believe it benefits stakeholders, the community, staff, students, the institution etc?



GENERAL SLPs	COMPANY SPECIFIC	WELA LDP
<ul style="list-style-type: none">✓ Exposure and increased marketability for the department/school/NMMU✓ Research opportunities✓ Opportunity to gain additional funding✓ Up-to-date industry specific knowledge✓ Developing industry and students✓ Personal development✓ Meeting goals and objectives of the department and NMMU✓ Building graduate profile✓ Responding to national/international needs/requirements✓ Increased student numbers✓ Student retention		

If any, what are your greatest lessons learnt about Engagement in Higher Education?



GENERAL SLPs

COMPANY SPECIFIC

WELA LDP

- ✓ Creativity and innovation can break boundaries
- ✓ Collaboration and shared passions equal effective and desired results

