

NMMU ENGAGEMENT EXCELLENCE AWARD

APPLICATION

1. **Name of Applicant:** Karl du Preez, Department of Mechanical Engineering
2. **Names of Team Members:** N/A
3. **Indicate the Award Category being applied for**

3.1.	NMMU Engagement Excellence Award	x
3.2.	NMMU Engagement Excellence Team Award	
3.3.	NMMU Emerging Engagement Award	

4. **Nature of the engagement activity/project**

The engagement portfolio of Mr du Preez can be categorized into two activities:

1. MERSETA Chair in Engineering Development (ED)
2. Manager of the Advanced Mechatronic Technology Centre (AMTC)

1. MERSETA Chair in Engineering Development (Outreach and community service, teaching and learning)

a) Summary (abbreviated report attached in Appendix A of this document)

The Chair is responsible for the development of six major projects: Upliftment of FET Colleges, Upliftment of Technical High Schools, Promotion of Woman in Engineering, Specialized skills development, Internships at Colleges and the Implementation of a Math, Science and Engineering Development Programme (MSEDP) in Somerset East.

b) Aims and objectives

- To increase capacity of educators at ten Technical High Schools in the Eastern Cape Province;
- To create awareness of engineering amongst learners and educators;
- To promote and monitor the development of women in engineering at NMMU;
- To support holistic development of female students in engineering at NMMU;
- Specialist skills development in renewable energy;
- To develop support for FET Colleges (FETC) in order to increase capacity in Mechanical, Electrical Engineering and Mechatronics and to strengthen the collaborative links between NMMU and these FETC;
- Placement of interns at PE College to increase their staff capacity to deliver quality students in the field of Mechatronics and Mechanical Engineering;
- Implement a Math, Science and Engineering Development programme at the rural schools of Somerset East.

c) Partners

- merSETA (main sponsor);
- Five Technical High Schools;
- Three EC FET Colleges;
- Blue Crane Development Agency (Somerset East);
- Govan Mbeki Math Development Unit;
- STEM Laboratories.

d) Expected outcomes

- Training of ten educators at ten schools in Technology related subjects;
- Ten schools to be identified and engineering awareness be promoted through orientation session through the involvement of STEM laboratory;
- Introduce a teacher orientation workshops;
- Introduce a Junior Cyber Junkyard Challenge (technical) to 7 technical high schools and three FET Colleges;
- Develop one laboratory of at least one FET College;
- Develop learning and career path poster in collaboration with NMMU FET Task Team;

- Develop renewable energy skills of three engineering students through system development;
- Present renewable energy workshop to at least 30 students in the School of Engineering;
- Documented female student portfolio development;
- Number of female students placed in industry documented and reported on.

2. AMTC (Outreach and community service, teaching and learning)

a) Summary (abbreviated progress report attached in Appendix B of this document)

The key role of the AMTC is the human resource development of engineering learners (high schools), students (School of Engineering), industry members and academic engineering staff. The AMTC also plays a vital role in the appointment and guidance of student human resources in specific student projects like the Siemens Cyber Junkyard Competition, World Skills Olympiad and the Solar Vehicle Design and Manufacture.

b) Aims and objectives

- To establish a centre of knowledge in renewable energy;
- Create awareness of green energy and be in tune with environmental issues;
- Participate annually in the Siemens Cyberjunkyard Competition;
- Financial support to Formula Student as well as Baja Bug projects;
- Manage the International exchange programme between NMMU (AMTC) and the University of Ostfalia (Germany);
- Train students and industry staff on latest automation technologies in two training centres;
- Offer two day workshop to at least 60 learners from various High Schools in order to expose them to the engineering environment;
- Manage and fund the community programme: University Collaborative Learning (UCL);
- Manage and fund an annual Automotive Engineering Career Development Programme (AECDP) to previously disadvantaged learners in Port Elizabeth;
- Conduct exploratory research, in conjunction with the University of Ostfalia and the VWSA/DAAD Chair, into the recyclability of a specific vehicle at VWSA as well as the possibility to create a Pilot Plant for the dismantling of automobiles in the Eastern Cape;
- Place students at two automotive suppliers companies in order to improve competitive edge;
- Collaborate with the Community School Unit of the NMMU.

c) Partners

- Automotive Industry Development Centre (AIDC);
- VWSA/DAAD International Chair;
- Wind Energy Research Unit;
- Siemens SA;
- Festo Didactics;
- STEM Laboratories.

d) Expected outcomes

- Complete the renewable energy platform to provide power to all PCs in Siemens Laboratory;
- Involve at least two students on renewable energy platform;
- Initiate and complete solar vehicle design and manufacture;
- Involve at least 6 students in solar vehicle design;
- Appoint a minimum of five students on Siemens Cyberjunkyard project;
- Encourage previously disadvantaged students to participate in projects;
- Internationally exchange 5 German Students, 3 SA students and 2 NMMU staff members annually;
- Train a minimum of 10 PDI students on one scarce skills programmes;
- Offer the UCL to at least 30 learners from Masibambane High School;
- Offer at least one Seminar to local industry to report on materials used, downstream economic viability of recycle material;
- Engage five automotive engineers at VWSA and skill in recycling;
- Exchange five Ostfalia recycling students to SA to commence dismantling research on VWSA vehicle. Skill five NMMU students on recycling dismantling procedures.

5. Assessment Criteria

5.1 Criteria 1

The impact and significance of the engagement activity.

a) Support of NMMU Vision

The establishment of the MERSETA Chair in Engineering Development (ED) and the AMTC has enabled the School of Engineering to create a vibrant academic environment through which knowledge is created, skills are upgraded and sustainable development of students are fostered.

The AMTC and MERSETA Chair in ED currently fully finances the following positions:

- **One** administrative assistant
- **Three** project managers
- **Two** full-time automation instructors
- Varying between **one to four** technical support staff

b) Support of NMMU Mission

All programmes in the MERSETA Chair in ED and AMTC are aligned with the development of critical skills of learners, students and industry members. These programmes support the academic programmes in the School of Engineering through:

- Research support (infrastructural support to 5 Masters students)
- Academic programme support (support WIL students)
- Academic staff development (staff receive accredited training, staff are financially supported for international exchange programmes)
- SLP development (three new SLP development support)
- Industry support (student internships)
- International Collaboration (University of Ostfalia and Ruitlingen exchange programmes)

c) Improvement of quality of life

The AMTC supports community projects (UCL, Somerset East Winter School and AECDP Winter School), student development programmes (Cyber Junkyard, Solar vehicle design, wela) and industry development (Automation training). All these programmes directly impact on the human capital development of individuals which impacts on employability and hence quality of life of not only individuals but the immediate families of the affected persons. The Units supports all Open Day activities of the NMMU with displays of all their projects and actively promotes engineering as a career at a various number of High School through presentations, laboratory tours and High School competitions.

5.2 Criteria 2

The intellectual endeavors contributed by the engagement activity.

a) Application of relevant knowledge

The AMTC and the MERSETA Chair in ED's relevant knowledge area is mechatronics with specialization in electrical automation and mechanical design. The following projects contribute to knowledge and skills development:

- Technical Educators and FET College staff training (PLC programming, Pneumatics, Hydraulics and Autocad)
- Junior Cyber Junkyard Competition for Technical High School and FET Colleges (artifact; Water pumping automated system)
- Student design projects – Artifacts; Solar Vehicle Projects, Pneumatic Driven Automated Vehicle.
- Student internship placement at Automotive Supplier Companies

b) Creativity and innovation

Various projects are supported by the AMTC that demonstrates creativity and innovation. Examples are:

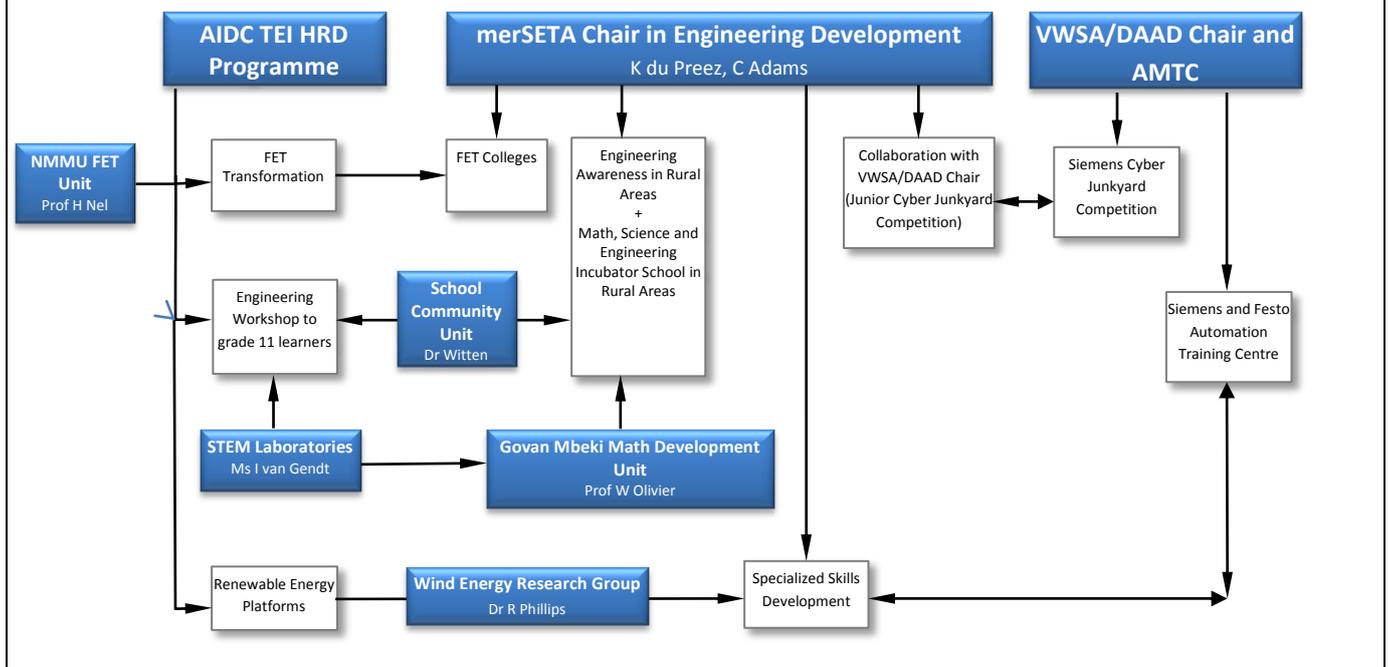
- Master Research student support, Artifact; 3D optical measurement system for complete vehicle.
- Renewable Energy Management System for laboratory E17 (Siemens Training Centre), Laboratory E17 is provided energy by means of green technologies designed and commissioned by under- and post grad students.
- Design and manufacture of a process training unit utilized for training purposed in the Siemens Training Centre. Artifact: Process training unit with Siemens products.

5.3. Criteria 3

Communication and dissemination of knowledge and expertise.

- Both the AMTC and the MERSETA Chair in ED have quarterly (three monthly) as well as annual reports that serve at quarterly management and annual Steering Committees. Agendas, minutes and report are available on request.
- Formal presentations to Steering Committees are conducted annually to illustrate the effectiveness and achievement of set goals.
- Both programmes prepare business plans for role-players in advance with set targets and key deliverables. Funding is not appropriated if deliverables are not met! Analysis of deliverables and targets are measured on a quarterly basis.
- Both programmes have signed contracts approved through NMMU policies and procedures as well as major role players (MERSETA and AIDC).
- Both programmes table annual reports through the NMMU Centre for Academic Engagement and Collaboration.
- A key performance contributor is the integration of the two programmes with other units and centres at the NMMU. Figure 1 illustrates the extent to which integration between the various NMMU units are realized in order to maximize the impact of the various activities of the MERSETA Chair as well as the AMTC.

Figure 1: Integration of NMMU Units with AMTC and MERSETA Chair in ED



5.4. Criteria 4

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

The applicant serves on the following committees at the NMMU (internal and external):

- EBEIT faculty representative on Engagement Committee;
- EBEIT strategic committee member;
- Nelson Mandela Bay Municipality HRD Forum representative;
- MERSETA Steering Committee Member;
- AIDC Steering Committee Member;
- VWSA/DAAD International Chair Steering Committee Member.

Level of responsibility of applicant

The following two diagrams graphically illustrate the responsibility of the candidate with respect to the MERSETA Chair and AMTC Manager positions. Please note that these diagrams do not depict reporting structures.

Figure 2: MERSETA Chair in ED

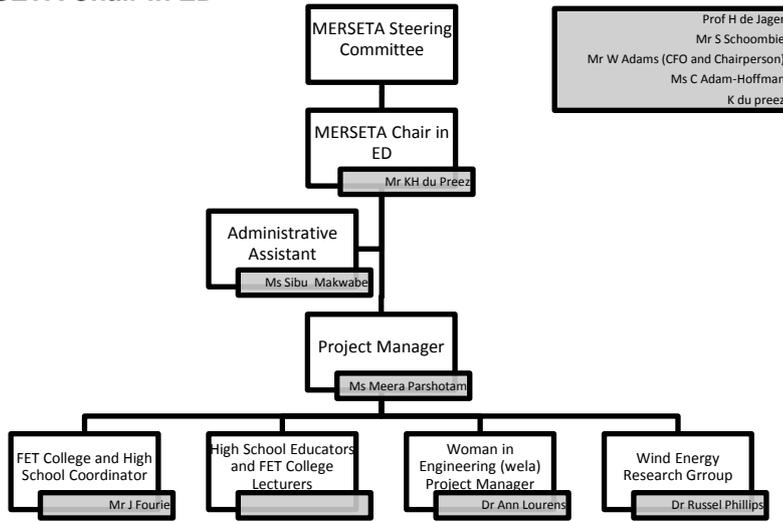
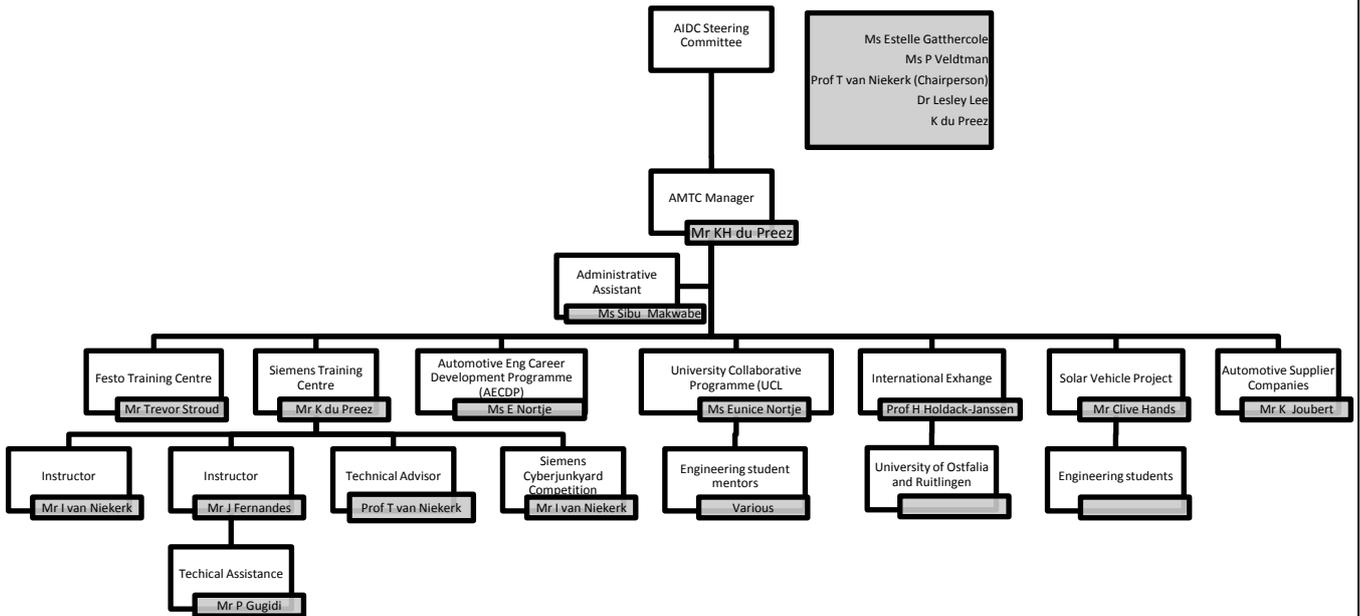


Figure 3: AMTC Manager responsibilities



5.5. Criteria 5

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

Please refer to **Appendix E** attached to this document. Acknowledgements received from:

- Industry partner, AIDC, Ms Estelle Gathercole
- Government Partner, MERSETA, Ms Carmen Adams-Hoffman
- VWSA/DAAD International Chair, Prof Theo van Niekerk
- Students, Mr Spyce Colwana, Mr Shaun Pretorius, Mr Sine Boqwana, Mr Winisi Akhona and Ms Sabrina Olivier.
- East Cape Midland College, Mr G Cameron and Mr J Attwell, Mechatronics Lecturers.
- Blue Crane Development Agency Somerset East, Mr Rob Beach.

5.6. Criteria 6

The integration of engagement into the core academic functions.

One of the major impacts of the engagement of the AMTC, through the AIDC TEI Human Resource Development Programme, was the establishment of the following new infrastructure in the School of Engineering:

- Festo Training Centre (Sponsors: Thyssen Krupp, GMSA, NMMU Trust, AIDC – R7mil)
- Siemens Training Centre (Sponsors: Siemens, NMMU Trust, AIDC – R1,2 mil)
- Robotic Training facility (Sponsors: DST, LN Manufacturing – R4mil)

The number of students, and in which modules, training was integrated into academic programmes is summarized in the attached **Appendix C: Impact Report of Training Centres**. In summary, students from Electrical, Industrial, Mechanical and Mechatronic Engineering all receive training in the established laboratories.

The AMTC is also responsible for the placement of a number of students in the Centre on practical projects which have led to the accreditation of Work Integrated Learning, NDip Design projects as well as final year BEng Mechatronic Design projects. Examples are:

- Siemens Cyberjunkyard Competition (compressed air vehicle, automated soccer machine)
- Automotive CAN Communication platform for VWSA
- Automated Water Drive system

A number of project that have been initiated or financially support by the AMTC, are now research platforms that are utilized by post-grad students. Evidence are attached in Appendix A and B in this document. Examples are:

- Formula Student Racing Vehicle
- Solar Vehicle Project
- Renewable Energy Platform
- Automation units

Please note that annual reports since the inception of the programme dating from 2003 until 2012 are available on request. Only the latest progress reports (2011) are added as evidence (all annual reports will make this document too cumbersome). Additional evidence is available on request only.

5.7. 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.

N/A

6. Contacts

Provide the names and details of internal and external stakeholders/partners that can be contacted.

External

Ms Estelle Gathercole: AIDC Regional Manager Eastern Cape – 072 226 4177
Ms Carmen Adams-Hoffman: Career Development Manager, MERSETA – 079 898 2994
Mr Christo Basson: Senior Manager LETQA, MERSETA – 082 738 9777
Mr Rob Beach: Manager, Blue Crane Development Agency (Somerset East) – 082 329 4547
Mr Des Burrows: Training Manager, Siemens Training Center (Johannesburg) – 071 363 9586
Prof Hinrich Holdack-Janssen, ex VWSA/DAAD International Chair - h.holdack-janssen@ostfalia.de
Prof Joachim Schmidt, Dean of Automotive Engineering: University of Ostfalia - j.schmidt@ostfalia.de

Internal

Prof Theo van Niekerk, VWSA/DAAD International Chair – x9951
Prof Werner Olivier, Govan Mbeki Mathematic Development Unit – x2305
Ms Isabel van Gendt, STEM Pipeline Projects – x1185
Dr Russel Phillips, Wind Energy Research Group – x3609
Mr Clive Hands, Solar Vehicle Design and Manufacture – x3375
Prof Pat Mc Grath, HOD: Dept of Mech Eng – x3608
Mr Sarel Schoombie, Director: School of Engineering - 3208
Prof Henk de Jager, Dean: EBEIT – x3955

7. Attach a Portfolio of evidence and supporting documents linked to the above criteria

Attached to this document are the following appendices:

- **Appendix A: Abbreviated progress report for the MERSETA Chair in Engineering Development (2011/12)**
- **Appendix B: Abbreviated progress report for the AMTC - AIDC TEI Human Resource Development Programme (2011/2012)**
- **Appendix C: Impact Report of the Siemens Training Centre**
- **Appendix D: Summary of the Automotive Engineering Career Development Programme (AECDP) – Winter School**
- **Appendix E: Acknowledgement from the MERSETA, AIDC, VWSA/DAAD International Chair, Industry and students.**

Note:

1. *Detailed annual reports, individual project close-out reports and financial statements of all mentioned projects (and additional) showing the engagement activities since 2003, are electronically available.*
 2. *Designed and manufactured artifacts are available to view in laboratories E22 and E17 on NMMU North Campus.*
 3. *A detailed impact report, conducted in 2010 is available on request.*
 4. *Project detail is available on the following domains:*
 1. Woman in Engineering: <http://www.facebook.com/groups/WELAGIRL/>
 2. Renewable Energy Platform: <http://renewableenergy.nmmu.ac.za/>
 3. Solar Vehicle Project: <http://nmmusolarcar.co.za/>
 4. Siemens Training Centre: <http://www.nmmu.ac.za/siemens>
 5. AMTC: <http://www.nmmu.ac.za/default.asp?id=10722&bhcp=1>
 6. MERSETA Chair in ED: <http://www.nmmu.ac.za/default.asp?id=10765&bhcp=1>
 7. Formula Student Project: <http://www.nmmu.ac.za/default.asp?id=8221&bhcp=1>
8. Please confirm that all the information provided is correct by signing your application

Name: **KH du Preez**

Signature:



Date: **10 March 2012**

Please note: All progress reports have been profoundly edited in order to limit length of reports.

Appendix A: Progress report for the MERSETA Chair in Engineering Development (2011/12)



1. PROJECT A: HIGH SCHOOL INTERVENTION

1.1 Successes

One of the major successes was the implementation of the Junior Cyber Junkyard Competition with six High Schools and three Colleges in the Eastern Cape. This project was done in conjunction with Siemens EC (R90,000.00) sponsorship. **Appendix A** summarizes all the activities that were accomplished in this project. Figure two below illustrates the second runners up from Newton Technical High School.



2nd runners up Newton Technical High School (left) and Tank System (right).

2. PROJECT B: FET COLLEGE INTERVENTION

2.1 Current Status

The upgrade and commissioning of the robot cell at PE College has reached a stage where the cell can be utilized for the implementation of Design project for Mr Cameron. The PE College invested a total of R29,651.26 to supply safety and educational training equipment that is required to automate the robot cell at PE College for basic robot and PLC training.

2.2 Successes

Academic research by Dr Patsy Paxton with regard to articulation of FET College students to Engineering studies at NMMU. Various workshops were held with College and NMMU engineering staff to determine the academic content, both rigor and complexity, of the Mechanical and Mechatronic Qualifications at FET Colleges and NMMU. The comparisons of her findings and also recommendations are summarized in Appendix E of this document.



Dr Patsy Paxton giving feedback to College and NMMU Engineering staff members



Staff members from College and NMMU that participated in articulation research

- Basic Pneumatics and Hydraulics courses were attended by seven lecturers from the **East Cape Midlands FET College** from 27 June to 4 July 2011. Training was conducted by Mr Trevor Stroud at the NMMU Festo Training Centre.



EC Midlands College staff at Pneumatic and Hydraulic Training

- The participation of all three colleges in the Junior Cyber Junkyard Competition, including training to all relevant staff members in automation.



Three Colleges that participated in Junior Cyber Junkyard Competition, EC Midlands, Buffalo and PE College

3. PROJECT C: PROMOTING WOMAN IN ENGINEERING

3.1 Current Status

wela has continued the activities that were implemented during the first three quarters of 2011. Currently Wela is recruiting new 1st year students onto the programme and will introduce them to the various activities as highlighted in the Wela progress report in Appendix B of this document.

Wela is also negotiating with the Department of Transport in order to elaborate the efforts to promote and support Women in Engineering. A formal memorandum of understanding is being prepared which will summarize the purpose of the collaboration. A meeting is scheduled for mid-February with the DOT to finalize arrangements.

3.2 Successes

The Q1-3 period was used mostly for the implementation of the first year's planning, organizing and research activities. Various activities were prepared and implemented for female students within the School of Engineering. These include:

- Motivational Speakers – Chata Romano workshop.
- The 7 choices of successful woman workshop.
- Academic Development – True colours workshop, Assertiveness, and Portfolio Development.

Wela-girls were issued with exam survival packs in preparation for the June examination in 2011. This pack included study skill notes; a mug; Milo; healthy snacks; stationery and sachets containing cappuccino mix.

Wela also created a Facebook page through which it can communicate with the students.

<http://www.facebook.com/groups/WELAGIRL/> The picture bellow shows a snip of one of the threads on Facebook.

4. PROJECT D: SPECIALIZED SKILLS DEVELOPEMENT

4.1 Current Status

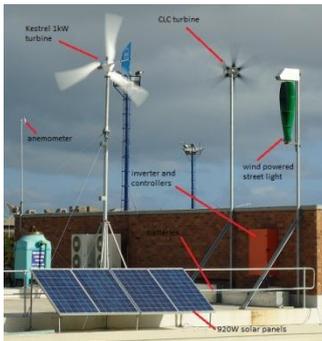
Students have completed the energy management system for the E-block in the School of Engineering and are currently expanding the activities through the implementation of two more projects:

- Solar tracking device to increase Solar Capacity.
- Solar concentrator to pre-heat water for production purposes.

Both these projects are done in conjunction with the AIDC Human Resource Development Programme within the School of Engineering.

4.2 Successes

The students completed the energy management interface to the renewable energy hardware on top of the roof of the E Block. The figure below shows the hardware that has been installed on the roof (funded by AIDC and industry partners Eveready).



Renewable energy system with all components on E Block (North Campus)

The aim of the project is to supply renewable energy to the Siemens Training Centre (E17). All PCs in E17 have been converted to green energy. The goal of the solar tracking device is to increase the renewable power supply in order to supply other loading devices. A screen display was erected in the offices of the Advanced Mechatronic Technology Centre (AMTC) which displays all the relevant data of the energy system on the roof. The figure below illustrates the screen with all the data.



Figure 1: Screen display in E22 indicated green power generated as per 20 October 2011

An IT student completed a website that interfaces to the hardware and displays “live” renewable energy data. The website is <http://renewableenergy.nmmu.ac.za/>

Cashflow Report - 31 December 2011

	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Total
Balance B/F	R 46,507.56	R 26,477.70	R 259,285.06	R 343,358.90	R 213,856.80	R 183,745.94	R 169,683.78	R 447,885.17	R 195,581.87	R 1,886,382.78
merSETA Funds received	R 0.00	R 150,000.00	R 150,000.00	R 0.00	R 40,000.00	R 0.00	R 300,000.00	R 0.00	R 250,040.26	R 890,040.26
Refunds	R 0.00	R 100,000.00	R 0.00	R 104,120.79	R 0.00	R 204,120.79				
Sponsorships	R 0.00	R 98,947.37	R 0.00	R 98,947.37						
VAT	R 0.00	R 36.51	R 90.20	R 6.40	R 44.24	R 0.00	R 14.00	R 0.00	R 0.00	R 191.35
	R 46,507.56	R 375,461.58	R 409,375.26	R 343,365.30	R 253,901.04	R 183,745.94	R 469,697.78	R 552,005.96	R 445,622.13	R 3,079,682.55
merSETA Chair staffing and operations										
merSETA Chair in ED	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 79,200.00	R 79,200.00
Administrative Coordinator	R 13,487.14	R 13,487.14	R 13,487.14	R 13,487.14	R 13,487.14	R 13,487.14	R 13,487.14	R 13,487.14	R 26,821.67	R 134,718.79
Project Assistance	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Marketing and Branding of Chair	R 0.00	R 5,696.51	R 0.00	R 5,696.51						
Printing, Telephone, Materials, etc	R 0.00	R 154.46	R 1,385.53	R 148.23	R 681.08	R 196.93	R 325.47	R 63.13	R 12.59	R 2,967.42
Travel & Transport	R 0.00	R 525.00	R 108.00	R 0.00	R 0.00	R 378.09	R 0.00	R 4,182.00	R 0.00	R 5,193.09
NMMU Facilities & Overhead Cost	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
PROJECT A: INCREASE CAPACITY OF FET AND STRENGTHEN LINKS BTW NMMU & SELECTED FET COLLEGES IN EC										
Needs analysis for training and development at three colleges in the identified fields.	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Specialised training courses for min. 10 Educators in the identified fields at the 3 colleges.	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 81,473.00	R 0.00	R 81,473.00
Consultation and advisory services for Mechatronics Lab at Buffalo City College	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Training of two Mechatronics Laboratory Staff members from Buffalo City College.	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Travelling	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
PROJECT C: WOMEN IN ENGINEERING										
Outreach and on-campus development programmes for female learners	R 0.00	R 10,832.70	R 4,061.71	R 38,008.84	R 22,990.64	R 0.00	R 0.00	R 0.00	R 0.00	R 75,893.89
Project Management & assistance	R 0.00	R 0.00	R 20,925.88	R 0.00	R 20,925.88					
Allocation of financial aid for two M or D female students	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Motivational Speakers	R 0.00	R 4,500.00	R 0.00	R 4,500.00						
Documented academic development programmes & developmental learning material	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Travelling/Advertisements	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Research conduct to grow women in engineering	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
PROJECT D: MERSETA ENGINEERING AWARENESS WEEK FOR GRADE 9+ LEARNERS IN RURAL AREAS										
Development and design of Engineering Awareness Week for Grade 9-11 learners	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Travelling	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
PROJECT E: COLLABORATION WITH THE VWASA-DAAD INTERNATIONAL CHAIR IN AUTOMOTIVE ENGINEERING AND GMSA CHAIR IN MECHATRONICS										
One project, approved by the Management Committee - completed by VWASA chair.	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
One project, approved by the Management Committee - completed by GMSA chair.	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
PROJECT G: INCREASE CAPACITY OF EDUCATORS AT SELECTED TECHNICAL HIGH SCHOOLS IN THE EC										
Needs analysis at the four schools and the development of training programmes in the technology related subject areas.	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Training of eight teachers at four schools in technology related subject areas (Multiple courses.)	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 64,000.00	R 0.00	R 64,000.00
Training of eight teachers at four schools in teaching methodologies and learning styles.	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Travelling	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
PROJECT H: SPECIALISED TRAINING PROGRAMME										
One specialised training programme development for the manufacturing and engineering related industry.	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Miscellaneous Transfers/Expenses	R 6,542.72	R 80,980.71	R 26,048.10	R 77,864.29	R 32,996.24	R 0.00	R 8,000.00	R 190,800.01	R 0.00	R 423,232.07
Accruals for 2010 & 2011 captured in 2012	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 2,418.81	R 0.00	R 2,418.81
Balance C/F	R 26,477.70	R 259,285.06	R 343,358.90	R 213,856.80	R 183,745.94	R 169,683.78	R 447,885.17	R 195,581.87	R 339,587.87	R 2,179,463.09
	R 46,507.56	R 375,461.58	R 409,375.26	R 343,365.30	R 253,901.04	R 183,745.94	R 469,697.78	R 552,005.96	R 445,622.13	R 3,079,682.55

Appendix B: Progress report for the AIDC TEI Human Resource Development Programme (2011/2012) – AMTC



Automotive Industry Development Centre (Pty) Ltd
Your partner in becoming globally competitive



1. SDT 6.1.1: Renewable Energy Platform

1.1 Key project outcomes (Q3 2011/12)

1.1.1 Renewable Energy Platform

- Solar sun tracker unit was manufactured and solar panels were ordered and delivered.
- The design of a website by an IT student completed. (<http://renewableenergy.nmmu.ac.za/RenewableEnergy.aspx>)
- A science project on Solar Power with High School Dispatch was completed. Learners presented their findings at a workshop at NMMU. See appendix E for project outline to learners. The student feedback reports are available on request.
- Concept design for a solar concentrator commenced.
- See appendix G for progress report from students.

1.1.2 Solar Vehicle Platform

- Concept design continued and manufacturing commenced. See appendix A for full progress report.
- Students attended VWSA open day as well as a lecture from Any Green (driver of the Thrust SCC in last world record run)
- Recruitment of students continued.
- Funding from DST approved (R330,000.00).

1.2 Photo gallery

1.2.1 Renewable Energy Platform



Website interface to solar equipment- designed by IT student



Solar sun tracking infrastructure manufactured by students



Solar vehicle students busy with manufacturing of monocoque

2. SDT 6.1.3: Siemens Cyberjunkyrd Competition

2.1 Key project outcomes (Q1 2011/12)

- Five students were appointed on the project.
- Designed and manufactured the compressed air vehicle as per specifications for the 2011 competition.
- Students won the 2nd runner-up position at the National Competition winning equipment worth R30,00.00 from LAPPKABEL, Festo and Siemens.
- Implement the compressed air vehicle into the Siemens training Centre at the NMMU as a training platform for students and industry (PID control).
- Strengthening of industry partnerships.
- Increase skills levels of graduate students, hence employability



Students with vehicle and receiving their 2nd runners-up awards at gala evening (right)

3. SDT 6.1.5 Formula Student Race Car Design and Manufacture

3.1 Key project outcomes (Q3 2011/12)

- NMMU Racing is expanding their collaborative relationship with Ingolstadt University in Germany, by moving beyond student exchange to sharing technical design information. See Appendix B for latest progress.
- One PDI student (Saleem Noorshin) exchanged to Ingolstadt for 5 months (starting February 2012)
- Total cash sponsorship = R665,000.00
- Vehicle design and manufacture completed.
- Vehicle shipped to Germany by VWSA logistic department and students took part in the International Formula student competition at Hockenheim.
- NMMU Racing achieved 65th place overall. See detailed report in Appendix D.
- Sponsorship received from NMMU Executive Management (two students), and Continental Tyre SA (ten students) to go to Germany in August 2011 to take part at the Hockenheim race track.
- Students displayed vehicle at NMMU Open Day (the School of Engineering stall won 2nd prize).
- Commence with virtual design of second prototype (Electric Formula Student Vehicle).
- NMMU Racing presented the vehicle to industry partners at a formal function at the Rover Race Track.



NMMU racing team in Hockenheim Germany



NMMU student with Ingolstadt racing team

4. **SDT 6.1.6 Student exchange (both ways) with University of Ostfalia**

4.1 Key project outcomes (Q3 2011/12)

- One student, Jarryd du Preez, was exchange to Wolfsburg in September.
- Two AMTC staff members, Jannie Fourie and Ian van Niekerk visit the University of Ostfalia during November, December and January 2012.
- Five German students were exchanged on the recycling project during Q1.
- An additional 3 students were exchanged in Q1 on following projects:
 - Automated Guided Vehicle – Christo Snyman & Steffen.
 - Sealer Detection Project – Ikho, Dennis, Xavier.
 - Automation of Checkpoint 5 – Hauke.
 - Wheel installation on the PQ240 line – Guido Bergholz.
- 3 Staff members were exchange for two weeks in Decmeber 2011

5. **SDT 6.1.7 Automation scarce skills (PLC Programming and Robotics) training/bursaries for PDIs**

5.1 Key project outcomes (Q3 2011/12)

- The following number of students completed a 1 week PLC and robotics training session.

Black	14	Male	18
Indian	3	Female	4
White	4		
Coloured	1		
Total	22		



Learners attending automation training

6. **SDT 6.1.8 Engineering Workshop to Grade 11 Learners in Eastern Cape**

6.1 Key project outcomes (Q2 2011/12)

- 60 Learners were exposed to the working environment and facilities of all the Engineering fields stated above in Q1.
- Career-guidance software, namely "Career Mentor" was used to aid in the decision-making process .
- Learners were taken on field trips to the Volkswagen SA Plant in Uitenhage and to the Nelson Mandela Bay Stadium to expose them to the working environment of an engineer. A tour of the Engineering laboratories of the NMMU exposed the learners to the study environment.
- Information and up to date presentations were given on the entry requirements of a number of institutions and universities in South Africa.
- Experts in the 5 fields of engineering covered information on the daily challenges, income generating possibilities and career path.
- Note: Full close-out report available.
- **The successes of the first workshop lead to the offering of an additional workshop to 40 learners.**



Learners on a lab tour

7. **SDT 6.1.9 University Collaborative Learning (UCL)**

7.1 **Project Description**

The University Collaborative Learning (UCL) Programme, is an NMMU student initiative interested in building better understanding of the different subjects and courses for matrics who seek to get to higher learning institutions. The programme involves various NMMU students that offer Saturday supplementary tutoring of matric subject to learners from the Masibambane High School. This High School is situated in one of the poorest areas of the Nelson Mandela Metropole.

7.2 **Key project outcomes (Q3 2011/12)**

- In semester 1 there were six tutoring sessions that took place on Saturdays.
- In semester 2 there were an additional six tutoring sessions that took place on Saturdays.
- The overall attendance and participation of the learners at Masibambane was positive.

8. **SDT6.1.10 Recycling**

8.1 **Key project outcomes (Q3 2011/12)**

- Prof Schmidt visited the NMMU for two weeks in March 2011 and will return in August 2011 to finalize project.
- Five German students completed and presented the findings of the dismantling project to VWSA management. The VWSA Polo is 94.99% recoverable which is in-line with European standards! **A full close-out report has been compiled but is only available to VWSA.**
- A feedback session to AIDC and stakeholders is arranged for Friday 12 August at the AIDC offices.
- A report looking at the viability of an African spare part center has been completed.
- A manual was compiled covering dismantling instructions.
- Recognition to VWSA personnel for their exceptional collaboration with NMMU staff and students.
- Two VWSA Trainee Technicians assisted on the dismantling project: Lwandiso Njokweni and Lwanga Mkosana.
- Negotiations with Prof Schmidt continued for continuation of project.
- The following outcomes achieved with Prof Schmidt (discussions in Germany November 2011):
 - Workshop: Green Technologies in Production and Recycling, Week of 16-19 July 2012, 4 evenings
 - * Waste Water Management - Prof from Suderburg, Prof Topper.
 - * Recycling of Plastic from Consumer Waste, Mr Achim Schiemann
 - * Life Cycle Engineering (From Materials, Production, Life Cycle Assessment), Mr Andreas Bertram
 - * Renewable Energy - Dr Russel Phillips



German and SA students dismantling the VWSA Polo



Student providing feedback to VWSA Staff

9. SDT 6.3 Supplier Development.

9.1 Key project outcomes (Q3 2011/12)

The following projects were identified and have been implemented.

1. Energy saving projects at Halberg Guss and Borbet

At the end of 2011 Halberg Guss and Borbet were visited and possible energy saving projects were identified

Borbet

Installation of lids on furnace's

1. Installation of heat shield on the burner of the ladle pre-heating station (Report in progress)
2. Min Lubrication system (Await info from agent for draft report). Ideal for the recycling of swarf at Borbet

2 Machining areas were identified to do calculations. The agent for this system in Port Elizabeth is currently busy with calculations and a timing plan to install a demonstration model at Borbet for a trial run.

- Swarf re-cycle plant will use less electricity to recycle swarf from the min lubrication system
- Lubricant used in Min Lubrication system is ECO friendly
- This system will also enhance housekeeping inside the factory

Halberg Guss

1. Water Harvesting – Harvest water from roofs to use in toilets (report available on request).
2. Heat exchanger project
3. Early reject detection by using of X-Ray Machine. Need costing information to complete calculations.
4. Increased price paid for aluminium swarf by implementing a Min Lubrication system

2. Borbet and Halberg South Africa Renewable Energy Proposal

The aim of this study is to reduce the peak power usage with solar energy to get a more competitive power price from Eskom. The object of this project is to supplement the peak power usage with solar energy thus reducing the peak power usage which in turn will reduce the electricity bill each month. See Appendix C for student report.

10. AMTC TEI HRD Programme Financial Report 2010/11

10.1 TEI Programme (NMMU account EN83)

Budget Summary - December 2011

Description of account	Budget	Expenses	Balance
Salaries (Admin)	R 21,000.00	R 95,659.45	R -74,659.45
Salaries (Lecturer Replacement)	R 20,000.00	R 0.00	R 20,000.00
Salaries (Technical)	R 24,000.00	R 21,839.15	R 2,160.85
Salaries (Lab projects and Research)	R 40,000.00	R 16,786.16	R 23,213.84
Entertainment	R 4,000.00	R 0.00	R 4,000.00
Sundry expenses	R 6,000.00	R 73,081.50	R -67,081.50
Telephone	R 3,000.00	R 2,695.71	R 304.29
Cellphone expenses	R 12,000.00	R 3,500.00	R 8,500.00
Project Management and administration	R 130,000.00	R 213,561.97	R -83,561.97
Solar and Wind Energy Project (Green Laboratory)	R 60,000.00	R 72,866.71	R -12,866.71
Solar Vehicle Design	R 100,000.00	R 73,791.97	R 26,208.03
Siemens Cyberjunkyard Competition (solar technology)	R 70,000.00	R 70,833.47	R -833.47
Baja Bug Competition	R 20,000.00	R 20,000.00	R 0.00
Formula Student	R 50,000.00	R 50,000.00	R 0.00
International student and staff exchange	R 40,000.00	R 37,980.00	R 2,020.00
Automation scarce skills (PLC Programming and Robotics)	R 50,000.00	R 0.00	R 50,000.00
Engineering Workshops to Grade 11 learners in EC	R 20,000.00	R 10,000.00	R 10,000.00
UCL	R 15,000.00	R 4,257.73	R 10,742.27
Recycling	R 25,000.00	R 2,970.00	R 22,030.00
Skills Development	R 450,000.00	R 342,699.88	R 107,300.12
Halberg Gus: Design a solar technology platform at facility	R 30,000.00	R 0.00	R 30,000.00
Halberg Gus: Design a water harversting solution	R 30,000.00	R 0.00	R 30,000.00
Borbet: Design a renewable energy platform	R 30,000.00	R 0.00	R 30,000.00
Borbet: Complete a scrap rate improvement proposal	R 10,000.00	R 0.00	R 10,000.00
SDD Projects	R 100,000.00	R 0.00	R 100,000.00
Appoint one Engineers to promote and manage innovation	R 120,000.00	R 0.00	R 120,000.00
The Motor Industry Development Programme	R 120,000.00	R 0.00	R 120,000.00
Transfer to HR Account	R 0.00	R 55,000.00	R 55,000.00
Accruals for 2011 captured in 2012	R 0.00	R 5,577.96	R 5,577.96
Grand Totals	R 800,000.00	R 616,839.81	R 183,160.19

TEI Programme Budget Summary Q2 2011

Appendix C: Impact Report of the Siemens Training Centre (2011)

1. Background

The Siemens Training Centre was commissioned in 2005 at a total cost of R1.6mil and the first accredited training courses were offered in 2006. The establishment of the Centre was made possible by financial contributions from Siemens EC as well as the NMMU Trust. Table 1 summarizes the contributions.

Description	Cost
37.5% Siemens Discount	R 785,364.67
Siemens Automation and Drives SA Sponsorship	R 250,000.00
NMMU Trust Contribution	R 535,384.67

Siemens training center contributions

The Siemens Training Centre at the NMMU is fully accredited by Siemens SA's training division (SITRAIN) and offers courses to both NMMU Engineering students, NMMU staff (CPD points) and Industry customers. A range of automation courses are offered as stipulated by an annually renewable contract. The instructors in the center are fully accredited by Siemens.

2. Impact of Centre

2.1 3rd Stream Income Generation

The establishment of the center enabled the Advanced Mechatronic Technology Center (AMTC) in the Department of Mechanical Engineering to generate income to support human resource development, maintenance of laboratory equipment and student projects. The income generated since the inception of the training center is summarized below.

	Income	15% to NMMU	20% SITRAIN	Instructor Salaries	Profit
2006	R 154,866.04	R 23,229.91	R 30,973.21	R 64,272.00	R 36,390.93
2007	R 343,913.60	R 51,587.04	R 68,782.72	R 142,610.31	R 80,933.53
2008	R 601,886.00	R 90,282.90	R 120,377.20	R 78,000.00	R 313,225.90
2009	R 585,241.46	R 87,786.22	R 117,048.29	R 280,605.55	R 99,801.40
2010	R 749,261.77	R 112,389.27	R 149,852.35	R 159,748.40	R 327,271.75
2011	R 774,792.27	R 116,218.84	R 154,958.45	R 220,226.68	R 283,388.30
Total	R 3,209,961.14	R 481,494.17	R 641,992.23	R 945,462.94	R 1,141,011.80

Financial statement of Siemens Training Center

Note:

1. The 20% payable to SITRAIN as stipulated in contract with Siemens
2. 2011 is a snapshot as per September 2011
3. Current amount in Training account (Account 3146) is R390,000.00

2.2 Student training

One of the major impacts that the Siemens and Festo training center has had is the training of students in the School of Engineering. The table below summarizes the total number of students (1061) that received training as a result of the establishment of the Siemens and Festo Training Center through the AIDC TEI Programme.

Module Code	Module Desc.	ENR 06	ENR 07	ENR 08	ENR 09	ENR 2010	ENR 2011	Totals
ECS2011	CONTROL SYSTEMS II	42	58	139	108	102	98	547
EPC4012	PROCESS CONTROL IV	0	52	0	32	0	28	112
MNE3311	MECHANICAL MANUFACTURING ENGINEERING 3	30	36	33	51	41	32	223
ECI4111	PROCESS CONTROL AND INSTRUMENTATION 4	0	0	16	15	20	24	75
MMC4111	AUTOMATIC CONTROL IV	10	22	17	14	25	16	104
	TOTALS	82	168	205	220	188	198	1061

Number of students that received training in Siemens Training Center (2006-2011)

2.3 Industry Training

The main source of income for the Siemens training Center is the offering of accredited courses to local industry. The total income is shown in Table 2 and the total number of industry members trained from 2006 until 2011 is indicated in table 4 below. Note that the numbers trained in 2011 only reflects up to June 2011.

	Industry members	Male	Female	White	Black	Coloured	Indian
2006	76	73	3	45	24	7	0
2007	62	61	1	41	10	7	4
2008	67	65	2	34	20	12	1
2009	78	74	4	51	16	11	0
2010	126	121	5	73	35	18	0
2011	53	51	2	32	15	5	1
Totals	462	445	17	276	120	60	6

Number of industry members trained in Siemens Training Center

2.4 Human Resource and Research Support

The surplus funding generated by the Siemens Training Center were largely utilized for the support of human resources required for lecturing, maintenance of laboratory and research support. The table below summarizes the human resource capacity as well as the research support that the Center has been able to maintain.

Human Resource	Position	Year
Mr I Clark	Instructor	2006-2007
Mr A Buhagiar	Technician	2006
Mr D Odendaal	Technician	2006-2007
Mr F Adlam	Instructor	2006-2008
Prof T van Niekerk	Strategic Planning	2009-2011
Mr Ian van Niekerk	Instructor	2010-2011
Ms M Brown	Administrative Coordinator	2009-2011
Ms B Moodaley	Administrative Assistant	2010-2011
Mr Hennie van Rooyen	Instructor, M Studies	2008-2011
Mr J Fernandes	Instructor, M Studies	2010-2011
Mr K du Preez	AMTC Manager	2009-2011

Human Resource support (2006-2011)

Besides the human resource capacity supported by the Center, it has also supported various student projects (Cyber Junkyard Competition, Formula Student Project, World Skills Olympiad), research (MEng Mechatronics), international exchange programmes as well as the purchase of infrastructure for the operation of the Center (2 Pcs, 3 Laptops as well as a Data Projector). Prof van Niekerk makes use of the Siemens laboratory and equipment to conduct his research within the field of: Smart Sensors, Manufacturing Automation, Automatic Control Systems, and Application of Intelligent Systems. On average the laboratory supports 5-10 students with equipment and technical support. Current students under his direct supervision that benefit from the equipment:

Masters:

- Mr Ikho Bambiso – SinamicsD Multi-Axis Controller, Scalance Wireless Systems, S7-1200 PLC
- Mr Hennie van Rooyen – S7-300 PLC, I/O, Siemens HMI, Distance Sensors
- Mr Stefan Buys – S7-300 PLC, I/O, Siemens HMI, Distance sensors.
- Christo Snyman – S7-300 PLC, I/O, Scalance Wireless Systems, Siemens Drives.
- John Fernandes – S7-1200 PLC, Distance sensors, Drives and motors

BEng Final Year Project:

- Mr I Mukoki – Mecahtronic Gripper: S7-1200 PLC , Motors and Drives
- Mr G Jonck – Energy Management: S7-300 PLC, Profibus Equipment

- Mr X Fritz – Sealer Detector: S7-1200 PLC and Pneumatic Drives

2.5 Technician and Technical Support to School

Due to the specialist nature of the hardware and software involved, the school of engineering does not have the capacity to effectively provide technician and technical support to automation and control laboratories. The following highlight some of the support activities the Siemens staff was involved with:

1) Building, testing and provide support for Artifacts or Products Developed for Laboratory use:

- Two tanks process control system used in final year subject process control and instrumentation 4 to enable learners to achieve Exit Level Outcome 4, Siemens equipment: S7-1200 PLC, Switchgear, HMI, pump and drive, Level and temperature sensors.
- S7-1200 teaching stations used by mechanical, electrical and mechatronics students, Develop switch gear and mechanical box as well as maintain the hardware and software.

2) The following Technician support are provided

- Process Control and Instrumentation 4, BEng Mechatronics, LOGO and S7-300 practicals.
- Automatic Control 4, BTech Mech Eng, S7-300 practicals.
- Control Systems 2, NDipl Elec Eng, S7-1200 fault finding, testing and software upgrade.
- Process Control 4, BTech Elec Eng, S7-300 fault-finding, software configuration in CIM lab.

2.6 Direct Financial Benefit to School of Engineering and NMMU

During the period 2006 until 2011 the Siemens training Centre has directly contributed to the School of Engineering and the NMMU operational and infrastructural costs. The total contribution as indicated in the table below, R889,452.00. The amounts shown in this table was directly extracted from the ITS system as per 4 November 2011.

Item	Amount
Hardware and Software	R 330,875.00
Travel and accommodation	R 250,354.00
Operational (Coffee, printing, tel, office equipment)	R 117,401.00
Formula Student Sponsorship	R 10,000.00
Catering (Conference Centre North Campus)	R 146,822.00
Conference Contribution : M Knoesen	R 3,000.00
Junior Cyber Junkyard Contribution	R 23,500.00
International Student Contribution	R 7,500.00
TOTAL	R 889,452.00

Financial contribution to NMMU by Siemens Training Centre

In summary:

According the Faculty SLP policy, Option A, an additional 15% must be paid to the School or Department. The Siemens Training Centre has during the past six years contributed to the NMMU a total of R889,452.00 with a gross income of R 3,209,961.14 (table 2 of this document). This equates to:

$$\begin{aligned} \% \text{ Contribution} &= \frac{R889,452}{R3,209,961.14} \times 100 \\ &= 27.71\% \end{aligned}$$

This means that the Siemens training Centre has already re-invested an additional 27.71% of its gross income into the NMMU after the 15% and 20% deductions as per NMMU policy and Siemens contract. The profits of the Siemens training Centre (+- R360,000.00 as per ITS, 4 November 2011) are being utilized to secure the contracts of all instructors, students assistance and administrative support for 2012.

Appendix D: Summary of the Automotive Engineering Career Development Programme (AECDP) – Winter School

The Nelson Mandela Metropolitan University (NMMU) in collaboration with the Nelson Mandela Bay Municipality (NMBM) and the Automotive Industry Development Centre (AIDC) created and developed the Automotive Experiential Career Development Programme (AECDP) in 2005 to improve the on-going shortage for quality Mathematics and Science learners.

The 2005 AECDP programme incorporated a Mathematics Learner Programme (MLP – Mathematics Incubator School) (Phase 1) that was run over a period of fourteen weeks by the Govan Mbeki Sasol Mathematics Development Programme situated in the Department of Mathematics and Applied Mathematics on the NMMU Summerstrand South Campus. This programme specifically targeted problem areas in the new NCS mathematics syllabi of Grade 12 learners residing in the Nelson Mandela Metropole.

The Winter School section of the AECDP (Phase 2 and 3) was completed on 09 July 2010. The MDP will conclude on 14 August 2010 with an Awards Function that will be held at the NMMU Missionvale Campus.

The delivery dates of the respective programmes are summarised in table 1 below:

Programme	Function	Date offered	Duration
AECDP	Winter School programme	28 June – 09 July 2010	Two weeks
	Prize-Giving Ceremony	09 July 2010	2 hours
MDP	Mathematics programme	14 February - 14 August 2010	Fourteen weeks
	Prize-Giving Ceremony	14 August 2010	3 hours

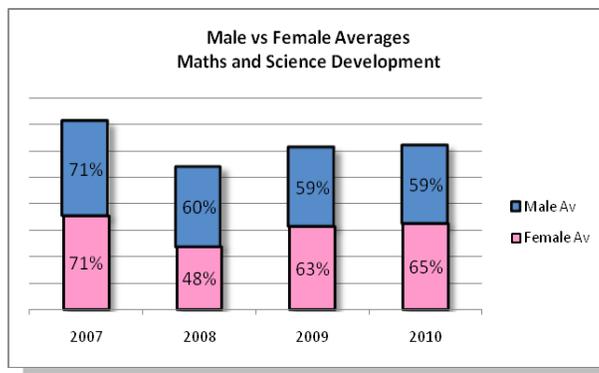
Table 1: Delivery dates of AECDP and MDP programmes

The first section of this report summarises the Mathematics Development Programme and the AECDP in its entirety. It includes sections on the MASEPP programme as well as the Teachers Workshops that was incorporated into the AECDP in 2006 for the first time. The section also reviews the selection procedure that was used to select the top thirty candidates, and the academic modules contained in the AECDP programme for 2010.

The second section reflects the results that were obtained through criteria set-up by the Department of Mechanical Engineering.

The feedback reflected in the third section of this report was obtained from various feedback meetings with lecturing staff involved and results obtained throughout the programme as well as written feedback from the learners. The feedback questionnaire and feedback form that was used to obtain feedback from the learners is attached in Appendix A and Appendix E respectively. This section also reviews the overall success of the programme through the eyes of the learners, their suggestions to improve theory and practical sessions and a brief synopsis of the study field that they want to pursue after completing their Senior Certificate.

The fourth section of this report deals with exposure generated during the programme and the fifth and sixth sections respectively deals with the follow-up school visits that will be conducted in August and September 2010 at each of the AECDP participants' high schools.



The 2010 report also includes a section that summarizes the progress of learners over the last 4 years.



Learners at the Math Development Programme



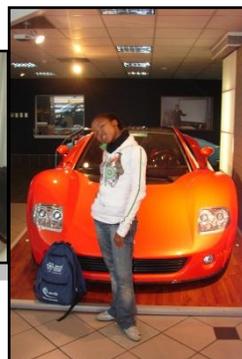
Class of 2010 on their first day



Learner at a library session



Learners doing autocad



Learners at VWSA Autopavilion

Appendix E: Acknowledgements from engineering students, MERSETA, AIDC and VWSA/DAAD International Chair.



Automotive Industry Development Centre
Your partner in becoming globally competitive

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28 February 2012

Prof. Henk de Jager
Executive Dean: Faculty of Engineering, the Built
Environment and Information Technology
Nelson Mandela Metropolitan University
Port Elizabeth
Per email: Henk.DeJager@nmmu.ac.za

To whom it may concern

Dear Sirs

**Mr. Karl du Preez – AMTC Manager: NMMU /AIDC- NMMU: TEI Programme
Project Manager**

In 2004 the Eastern Cape Development Corporation (ECDC) provided funding to the AIDC Eastern Cape, for the establishment of a "Tertiary Education Institution - Human Resources Development Programme" at seven Further and Tertiary educational institutions within the Eastern Cape. This was initiated as a result of comprehensive consultation with the automotive sector (which the AIDC serves) where it was recognized that there was a very real need to develop relevant technical training capacity and programmes in formal tertiary and further education institutions (TEI's).

The development of these institutions to become competent suppliers of training to the automotive sector was crucial to forge the link between specific industry demand and the supply of those skills and develop the technology base of the TEI's in order to keep abreast of this rapidly advancing industry. A further objective of the initiative was to *eradicate the "silo syndrome"* and ensure that tertiary institutions *engage with local industry*, stimulate local and international partnerships and address critical and scarce skills shortages within the industry and thereby increase employability of previously disadvantaged students in the Eastern Cape.

The TEI Programme was intended at the time (2004) to span a period of three years with the relevant institutions. The AIDC contracts stipulated *clear objectives and outcomes* with *rigorous administrative, financial, project management and reporting criteria* entrenched. Funding allocations were made to each of these institutions based on the nature and size of the initiative undertaken.



Automotive Industry Development Centre

The AIDC partnered with the Nelson Mandela Metropolitan University in 2004 to build the university's capacity through three sustainable pillars of activity, namely; *Training and Education* (through industry workplace orientated training, new qualifications and course development specifically for industry with an emphasis on Mechatronics, the development of previously disadvantaged students, practical solutions to industry problems etc), *Research and Development*, (new products and techniques, the development of new theories and methods in CI manufacturing including Mechatronics and Robotics) and *Collaboration* (to collaborate with local and international universities and institutions to provide students, facilitators and industry with "state of the art" solutions in Mechatronics, Robotics and other related technologies).

As with all of the partnered education institutions, a Project Manager within the institution was appointed to implement, manage and direct the initiative and to report to the AIDC's Skills Development and Training Department on the progress of the programme. *Mr. Karl du Preez, at that time, Head of Mechanical Engineering at the NMMU, was appointed as the TEI Programme Project Manager* reporting to a joint AIDC/NMMU Steering Committee on a quarterly basis and directly to the AIDC Skills Development and Training Manager on an ad-hoc and monthly basis.

It is noteworthy that whilst six of the AIDC's TEI Programmes ended after their contract lifespan of three years, the *enormous success and impact* of the TEI Programme at the NMMU, culminated in the Eastern Cape Development Corporation electing to continue to provide funding to AIDC for the NMMU TEI Programme. *Mr. du Preez has served the AIDC TEI (HRD) Programme for **eight consecutive years*** and it is anticipated that funding will possibly be awarded again in 2012.

There is absolutely no doubt that *the success and longevity of the programme is directly attributable to Mr. du Preez*. His support and management of the programme, through his significant contributions to the structure and content of the interventions, his innovative thinking (which he encouraged in the students) his professionalism and engagement with industry and most of all, his hard work, dedication and commitment have yielded a truly successful programme that is recognized not only by government, but by industry itself.

It is well documented that the automotive industry sets best practice standards globally and, as such, demand that results delivered are of a very high standard and typically subscribe to stringent timelines. The AIDC EC naturally adheres to these standards and ensures that the people with which they work can articulate the latest innovative trends and developments and possess the requisite skills and attributes in order to engage with senior business practitioners in industry and interpret and apply the necessary techniques and methodologies that support continuous improvement. Mr. du Preez application of best practice and his successful engagement on behalf of the AIDC with local industry and government, within the scope of the TEI Programme, is illuminated in the many student/industry projects implemented and the substantial leveraged funding secured with industry over the past eight years.

One of the key objectives of the AIDC TEI Programme was that of Human Capital Development (for the automotive sector). The vast number of students and learners within the TEI Programme that have directly benefitted from the interventions conceptualized and implemented by Mr. du Preez, illustrate the importance of his role in the development of



Automotive Industry Development Centre

human capital and in enriching the lives of young engineers, technicians and future engineers (secondary school interventions).

The AIDC EC is a government agency and aligns itself to the strategies and mandate of the Eastern Cape Provincial Government. The persistent need for the development of the regions education institutions is vital to the economic growth of the Eastern Cape and further, the AIDC seeks to involve all stakeholders in the sector/industry and community and take ownership of its social responsibilities in the region. Similarly, there is the expectation that its collaborative partners would embrace these responsibilities too. Mr. du Preez has been extremely instrumental in defining the social responsibility landscape within the TEI Programme. The core thrust of a number of the training programmes and interventions is directly associated with social engineering i.e. developing young disadvantaged Black engineers for a highly competitive market, the exposure of learners to career info-forums and engineering winter schools.

It would be difficult to reflect all the projects, interventions and impact statistics of the AIDC's programmes under the management of Mr. du Preez over the past eight years within the confines of this letter, but the AIDC welcomes any enquiry in this regard.

The AIDC recognizes and thanks Mr. du Preez for his commitment to the endeavors of the AIDC and its programmes. The successful execution of the programme through his unique and interpretive approach in engagement, communication, implementation and management style has allowed for an ongoing rewarding partnership between the AIDC and the Nelson Mandela Metropolitan University.

Sincerely

A handwritten signature in black ink, appearing to read 'E. Gathercole', written in a cursive style.

E. GATHERCOLE
GENERAL MANAGER

BLUE CRANE DEVELOPMENT AGENCY

Tourism
Chris Wilken
082 329 4546
Agriculture
Nico Lombard
082 329 4545
Business
Rob Beach
082 329 4547
Finance
Conrad Everson
082 796 8951



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Web:
www.bluecranedevlopmentagency.co.za



Mr. Karl du Preez
AMTC Manager
Mechanical Engineering
Summerstrand Campus - North
NMMU

6 March 2012

To Whom it may concern

LETTER OF COMMENDATION AND THANKS TO MR. KARL DU PREEZ.

The above matter refers.

Our agency is privileged to be professionally associated with Karl Mr. du Preez in his capacity as AMTC Manager for Mechanical Engineering Faculty at NMMU.

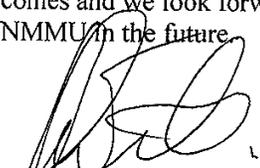
We wish to take this opportunity of recording our appreciation and thanks for the instrumental work, time and effort by Mr. du Preez in the establishment of the Maths, Science and Engineering Incubator project here in Somerset East. This project has completed its first highly successful year, with almost two hundred learners and fifty teachers having successfully been trained on the program. The success of this project as a mitigation, when measured against the deplorable status quo in the fields of maths and science in our province, is highly commendable.

We are equally thankful to Mr. du Preez and his colleagues for having subsequently expanded this project in both Graaf-Reinet and Cradock.

Mr. du Preez has likewise assisted our agency with the establishment of a collaboration exercise between NMMU and Wits University in the field of friction stir welding.

Mr. du Preez has an inspiring, friendly and approachable disposition; coupled with a can do attitude regardless of potentially unfavourable and difficult circumstances.

We believe Mr. du Preez is both a credit to himself and the institution from which he comes and we look forward to the privilege and pleasure of working with him and NMMU in the future.


Mr. Chris Wilken
(CEO)


Robin Beach
(Business/Aviation Manager)



14 March 2012

TO WHOM IT MAY CONCERN

The Manager of the Advanced Mechatronic Technology Centre at NMMU, Mr Karl Du Preez, has greatly contributed to the success of the VWSA-DAAD International Chair in Automotive Engineering.

Mr Du Preez has played an integral part in providing the necessary support and funding for projects that were done in collaboration with Volkswagen of South Africa. These projects included a project on the dismantling of vehicles and determining the recyclability of the locally produced Polo, in order for VWSA to conform to European standards.

Financial support was provided by Mr Du Preez to ensure that the very first Formula Student Racing car in Africa is produced by NMMU engineering students. Students were also afforded the opportunity to compete with the vehicle in the prestige Hockenheim event, Germany.

Mr Du Preez also supports the recently launched VWSA-DAAD Chair "green" projects, which include a waste management project done for VWSA, whereby exchange students from Germany will attempt to reduce the landfill levels of VWSA to 0%.

Through his drive and dedication, another "green" project titled VWSA-NMMU Solar Car was initiated. Mr Du Preez assisted the Solar Car team with providing human resources as well as assisting with the drafting of funding proposals to various Government departments.

We at the VWSA-DAAD Chair greatly appreciate the time, effort and other resources that Mr Du Preez has invested in Chair projects and view him as a key partner to our successes.

Should you have any queries, please feel free to contact me on the provided contact details below.

Kind regards

A handwritten signature in black ink, appearing to read 'Theo van Niekerk'.

Prof Theo van Niekerk
Tel: +27 (0) 41 504 9951
E-mail: Theo.vanNiekerk@nmmu.ac.za

In partnership with:



DAAD

Deutscher Akademischer Austausch Dienst
German Academic Exchange Service

Fish Eagle Cove 43
1929 Vereeniging, Südafrika
Mobile: +27 (0) 711 603 427
Email: shaun.pretorius84@gmail.com

Vereeniging, 06.March 2012

Subject: Reference letter Karl Du Preez

I first met Mr. Karl Du Preez as a young student when I started my studies in 2003 at the NMMU where he was the HOD of the Department of Mechanical Engineering at the time. Later in my studies after successfully completing some modules, Mr du Preez lectured me Mechanics of Machines. As a lecturer, Mr du Preez was always very helpful and concise with his lecturing and explained the work which I found difficult at the time in a friendly manner which motivated me not only to understand but to excel and enjoy the work.

After the completion of an exchange program to Germany and during my BTech Studies, I was employed by the DAAD Volkswagen Chair in Automotive Engineering as a research assistant and later as a researcher. During this period, Mr du Preez was managing my project, where I got to know him professionally. He is outspoken, a good communicator and an excellent ambassador. Mr du Preez is well liked by everyone he dealt with especially by our German partner university Ostfalia and by Volkswagen of South Africa where he played a crucial role in relations which led to the success of some of our projects.

Later when I started working as a researcher at the University Mr du Preez offered to be my promoter and mentor for my masters project where I got to know him on a personal level. When faced with difficult situations he was always there to listen and offer solid technical advice as well as personal advice. Thanks to the skilful guidance and leadership from him, not to mention the financial sponsorship he found for my project, I was able to finish my masters work in the one year prescribed time.

I am very happy that I have had Mr du Preez as a lecturer, project manager and promoter and believe that he sets a very high benchmark and is a catalyst in promoting academic excellence out of his students.

Mr du Preez only downfall is that he supports the **blue bulls** 😊

Shaun Pretorius



Below are letters and emails sent from engineering students who are now successfully employed in the Engineering industry.

To Mr Karl du preez

The Manager

Letter of Appreciation

Dear Sir

My name is Akhona, I am a 3RD (S4) Mechanical Engineering student at NMMU, originally from Butterworth Eastern Cape.

I am writing this letter to you, I want to appreciate the role that you have played in my career. If I can briefly remind you, I started to know you January 2007 when I came to your office looking for a school, it was in the afternoon, I wanted you to admit me to do mechanical engineering but you told me that I did not meet the requirements, you sat down with me and you gave me an advise of my life time, you advised me to go to Port Elizabeth College to study from N1 to N5 so that I can get good basics in Engineering.

I did that, I went there and studied from N1 to N5. I really appreciate the attention that you gave me, I am currently doing my S4 in mechanical Engineering and I have never failed since I was studying at the University, now I am one of the two students who were selected to go to Germany as an exchange student.

Also I want to use this opportunity to appreciate all the financial assistance that I got from you, the bursary, my flight contributions and the money that you gave me when I was going to Germany, thank you very much Sir. Good news is that I have passed all my modules in Germany but my results still needs to be amended by the international office. I wish to be successful one day and come back to your office to say thank you for building my life.

Yours Faithfull

Akhona Elvis Winisi

Dear Mr Du Preez

I would like to take the opportunity to thank you for your involvement in giving me the opportunity to be able to travel to Germany in the advancement of my future career in mechanical engineering. Not only was the opportunity well spent but also life changing to the various things i learned while i was there. I truly am grateful for the chance i was given to represent the university on such a platform.

I would also like to extend a big thank you to Ms Estelle Gathercole, regional Manager of AIDC (EC), for giving me the opportunity to future my studies in the form of a R25000 bursary, for this i will forever be grateful.

Yours sincerely

Sinenceba Boqwana

Hi Prof. Van Niekerk and Mr Du Preez

As the time approaches for the completion of my P2 here in Germany, Id like to thank you both for the wonderful opportunity you have blessed me with, the experiences are unforgettable and the knowledge I have gained will be of great use to my future.

But the last five months have contributed to my life more than just with experience and knowledge, but have moulded me into a stronger, more driven and independent, confident individual. I had the fortune of visiting family in Italy and touring

Berlin and other surrounding areas in the Niedersachsen region. I have learnt how to program in LabView and write reports in LaTeX and I have been given tasks to perform on my own under my own leadership.. For all these privileges I am truly grateful.

With every great experience comes a few challenges. Although my time here has been of a success and an enjoyable one, I had one too many bad encounters with a certain individual... Nevertheless, I can add this experience to my list of achievements whilst in Germany... surviving Pierre :)

On a happier note, I look forward to returning to NMMU, not only because of the bad cafeteria food... but for all the friendly familiar faces :) I will be registering for my last semester s4 when I return and am excited to get back into the swing of things again with some strict studying patterns and hard work.

"The difference between school and life? In school, you're taught a lesson and then given a test. In life, you're given a test that teaches you a lesson"

So again, I want to THANK YOU for setting me this test that has undoubtedly taught me lessons that will guide me to a higher success through life.

*Yours sincerely,
Sabrina Oliver
Department of Mechanical Engineering
NMMU
Cell: 084 376 5775
Fax: 086 554 0060*

Dear Mr. Du Preez,

I would just like to thank you, and all those involved, for my recent trip to Ingolstadt, Germany.

It was truly a great experience. It opened my mind on all levels, with studies, with different cultures, first world countries and all their history too. Attending the classes was also a big eye-opener. A completely different system to what I am used to, but I can see how it works there. Students there attend the non-compulsory classes because they know its to their own benefit, and just because they want to learn as much as they can.

I truly believe that if all South Africans could experience what I have, then our country will reach its full potential very quickly. Also being there has made me realise just how much potential South Africa has, and just how much of a beautiful place it really is. Thank you very much! A really great experience, and I wish all the best to any future students who get the same opportunity.

*Kind regards,
Ryan Harris*

Letter received from two Mechatronic lecturers at PE Midland College in Struanway Port Elizabeth.

TO: Karl Du Preez

FROM: Mr. G Cameron and Mr. J Attwell

DATE: 16/02/2012

RE: Assistance provided by MERSETA

On behalf of Mr. G Cameron and Mr. J Attwell we would like to thank the MERSETA for providing us with the opportunity to further our studies and for the additional courses.

We would also like to thank Professor Theo van Niekerk and Mr. Karl Du Preez in their endeavor to assist us to complete our professional engineering qualification.

With your invaluable input and assistance Mr Attwell and I could produce the following:

- Improvement in our students results
 - Introduction to Computer L2 80% pass rate.
 - Stored Program Systems L3 67% pass rate.
 - Stored Program Systems L4 100% pass rate.
- We received distinctions in Design Projects III.
- Gained tremendous insight with regards to our approach to lesson preparations and practical tasks.

We have learned a great deal by the training provided and the important projects that are currently under way with regards to the robot cell. I sincerely hope that you enjoyed our presentation.

However Mr Attwell and I still have modules outstanding which is required by the University to complete the National Diploma in Electrical Engineering.

Modules outstanding for Mr G Cameron:

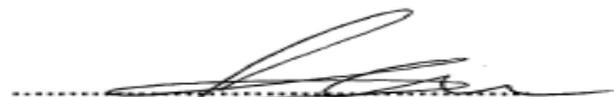
- Practical 1 (P1) in-service training
- Practical 2 (P2) in-service training

Modules outstanding for Mr J Attwell:

- Electronic Applications 3
- Software Engineering 2 & 3
- Mathematics 3
- Practical 2 (P2) in-service training

Any further assistance by the MERSETA and Mr Karl Du Preez to assist us in obtaining this qualification will be greatly appreciated. I would like to once again thank all the parties involved for the continuous support and encouragement.

Sincerely,



G CAMERON
MECHATRONICS LECTURER



J ATTWELL
MECHATRONICS LECTURER

Private Bag X313
Pretoria,
0001

13 March 2012

To whom it may concern

I have known Mr. Karl du Preez for four years. I knew him in my second year at the university, he was the Head of Department for Mechanical Engineering at Nelson Mandela Metropolitan University (NMMU). I have worked under Mr. Karl du Preez supervision in capacities which incorporate University projects and school community programme. And so, I am quite familiar with his involvements and engagement to the lives of other people.

Mr. Karl du Preez has offered me many opportunities as a student at NMMU, in 2009 he organized for me to jet off to Europe through an international project I was involve with at university. In March 2010, he invited my parents to the University and took them for a Departmental tour, showing them universities work and projects. As up to date Mr. Karl du Preez is still assisting me with my career endeavors. Besides his willingness and available to assist, I consider him a mentor, inspiration and a role model in my life.

Mr. Karl du Preez has an obvious and sincere concern for others and an excellent relationship with people of all ages. At all times I found him to be helpful, reliable, courteous, dependable and conscientious.

Sincerely,

Mphathisi Colwana
Engineering Technician, Mechanical Design



Tel: 012 336 8026
Cell: 071 725 4573
Email: colwanam@yahoo.com

Appendix F: Close-out report on Math, Science and Engineering Development Programme (MSEDP) in rural areas in Eastern Cape (2011).

1. Successes and Highlights of MSEDP 2011

The deliverables met for the MSEDP is summarized in detail in four documents: Deliverables 1-4. These deliverables are available on request. The following paragraphs highlight the major achievements for 2011.

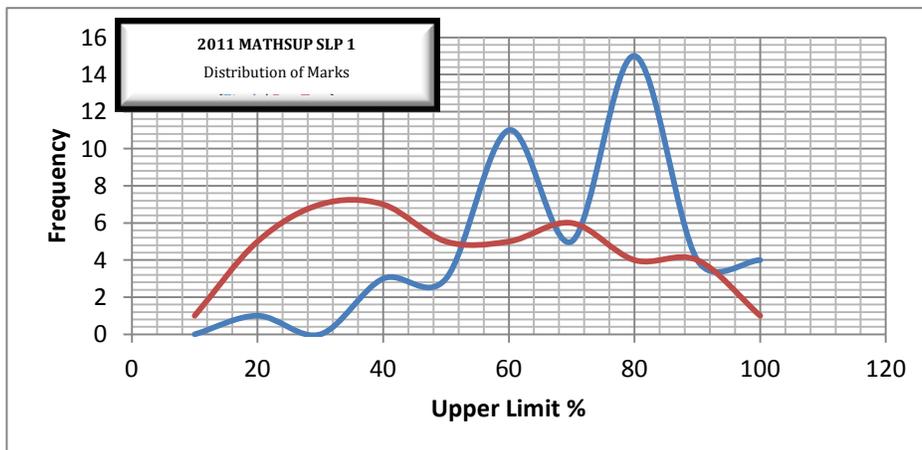
1.1 Mathematic Upgrade Programme (MATHUP) for Educators

The MATHSUP programme started successfully on the 8th of January 2011 when 49 in-service educators registered for the first of a series of two short learning programmes. Lectures during the contact period were presented by Dr HH Boshoff, and Mrs Elize Lombard played the role of project assistant during this time.



EDUCATORS (LEFT) AND MRS LOMBARD (RIGHT)

The figure below indicates the considerable increase in subject knowledge from the pre-test (in red) vs the final test (blue) that was written during the first training session of the educators.



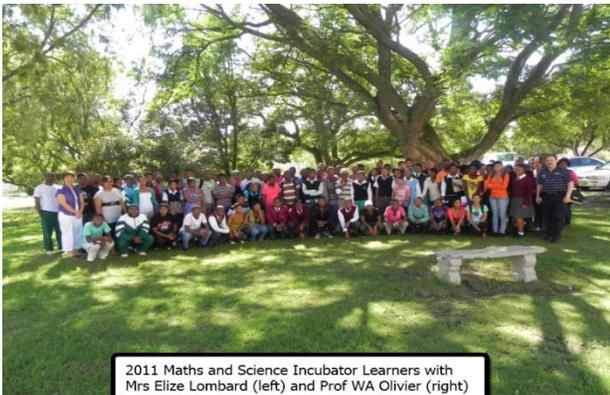
PERFORMANCE OF TEACHER'S PRE AND POST ASSESSMENTS IN SLP 1

1.2 Math and Science Incubator School Programme for Learners (MASLP)

The planning and preparations to implement a Maths and Science incubator school programme at Gill College for 50 Grade

11 and 50 Grade 12 learners from the Somerset East region started in October 2010. DOE officials again eagerly assisted the GMMDU team to identify 30 learners from schools close to Somerset East and 10 each from the Cradock and Graaff-Reinet regions respectively.

The programme was finalized in December and all the MASLP resource material was prepared and handed to the local coordinator at Gill College, Mrs Elize Lombard, on 20 January 2011. The attached deliverable documents summarize the course content and dates in detail.



2011 Maths and Science Incubator Learners with Mrs Elize Lombard (left) and Prof WA Olivier (right)

Math and science incubator school learners

1.3 Exam Preparation implementations for educators and learners

Incubator School Learners

The GMMDU management decided to offer the Science and Maths Exam Preparation workshops also to Grade 11 learners during August 2011. These workshops were offered over two Saturdays on the 6th and the 13th of August this year. The workshops were once again well attended with an attendance figure of more than 80%. Exam preparation DVD’s were facilitated with the Grade 11&12 Mathematics learners during these sessions.

MATHSUP project for Educators:

Two dedicated exam preparation workshops were presented in 2011 as part of the structured MATHSUP short learning programme implementations for the support of in-service Maths educators. The first of these workshops on a Friday & Saturday was held on 6 and 7 May 2011.



2011 Grade 11 Incubator School Group with Facilitators Mr Barlow (centre) and Mr vd Merwe (front)

2011 Grade 12 Incubator School Group with Facilitator Mrs Elize Lombard (centre)

Dr HH Boshoff during the Somerset East MATHSUP Exam Workshop May 2011

Grade 11 Prize-giving 13 August 2011

Grade 12 Prize-giving 13 August 2011

LEARNERS AND EDUCATORS AT THE EXAM PREPARATION WORKSHOPS

1.4 Grade 12 Engineering Winter School

The June 2011 Engineering Awareness Week for grade 11 & 12 learners kicked off on Sunday, 26 June 2011. Learners stayed in the hostel of Gill College for five days and attended various engineering activities. Learners also attended a tour of VWSA in Uitenhage as well as a tour of the NMMU Engineering laboratories in Port Elizabeth.

The Engineering Awareness Week was concluded with a prize giving, where all the learners received a certificate. Prizes consisting of a cell phone and NMMU brochures were awarded to the top achievers in the End-user and AutoCad modules, a prize (a cell phone) was also awarded to Malibongwe Solomon for being the Most Enthusiastic Learner, as well as a prize consisting of a digital camera and cell phone was awarded to Wakhela Ndaba for being the overall top achiever.



LEARNERS ATTENDING ENGINEERING ACTIVITIES



LEARNERS ATTENDING VWSA FACTORY AND RECEIVING AWARDS

The learners from the MSED P that have applied, awarded MERSETA bursaries and have been accepted to study at the NMMU are listed in the table below.

Surname	Name	Student #	Contact Details	Status	APS	Residence
Manuel	Jean-Pierre	212344366	0742582409	Mechanical Engineering - accepted	43	Xanadu
Mphailane	Naledi	212335545	0738730883	Mechanical Engineering - accepted	35	Lebombo
Mcotama	Melikhaya David	212346253	0729999070	Electrical Engineering - accepted	35	Omega
Ntombana	Mpho	212277448	0839861241	Mechanical Engineering - accepted	43	Letaba
Blaai	Monwabisi Ernest	212298097	0768386774	Electrical Engineering - not accepted	31	
Yoto	Bonginkosi	212411012	0715362909	Mechanical Engineering - not accepted	29	
Ndaba	Wakhele			Mechanical Engineering - accepted		Stellenbosch
Skepe	Siphelo	212346369	0719163511	electrical Engineering - accepted	47	UCT
Bonakele	Kamvelihle	212241478	0731872074	B Eng Mechatronics - accepted	43	xanadu

TABLE 2: LEARNERS FROM THE MSED P THAT HAVE APPLIED TO STUDY AT NMMU

2. Financial Summary of ISOE MESDP

Budget Summary - Month Ending 31 December 2011

	Budget	Actual Expense	Balance
merSETA Chair ISOE Incubator School			
MATHSUP - 50 FET Educators	R 320,000.00	R 300,000.00	R 20,000.00
MASLP - Grades 11 & 12 Maths and Science Learner Project	R 500,000.00	R 500,000.00	R 0.00
MASEPP - Grade 11 & 12 Maths and Science Exam preparation	R 60,000.00	R 60,000.00	R 0.00
Grade 12 Engineering Winter School	R 200,000.00	R 161,305.61	R 38,694.39
Bursaries	R 200,000.00	R 0.00	R 200,000.00
TOTAL	R 1,280,000.00	R 1,021,305.61	R 258,694.39

Cashflow Report - 31 December 2011

	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Total
Balance B/F	R 0.00	R 491,000.00	R 20,000.00	R 264,592.65	R 146,451.86	R 319,002.76	R 98,393.19	R 98,354.43	R 121,087.49	R 1,558,882.38
merSETA Funds received	R 491,000.00	-R 171,000.00	R 300,000.00	R 0.00	R 200,000.00	R 0.00	R 200,000.00	R 60,000.00	R 0.00	R 1,080,000.00
	R 491,000.00	R 320,000.00	R 320,000.00	R 264,592.65	R 346,451.86	R 319,002.76	R 298,393.19	R 158,354.43	R 121,087.49	R 2,638,882.38
merSETA Chair Somerset East Engineering Awareness Week										
Salaries	R 0.00	R 0.00	R 0.00	R 0.00	R 10,451.17	R 13,052.79	R 0.00	R 4,907.04	R 0.00	R 28,411.00
Travel & Transport	R 0.00	R 0.00	R 0.00	R 3,903.92	R 14,654.55	R 0.00	R 0.00	R 1,650.64	R 2,305.80	R 22,514.91
Accommodation	R 0.00	R 0.00	R 4,554.39	R 0.00	R 0.00	R 0.00	R 0.00	R 700.00	R 0.00	R 5,254.39
Hostel Fees	R 0.00	R 0.00	R 40,000.00	R 0.00	R 1,075.00	R 0.00	R 0.00	R 0.00	R 0.00	R 41,075.00
Printing	R 0.00	R 0.00	R 683.81	R 67.50	R 0.00	R 751.31				
Stationery Packs	R 0.00	R 0.00	R 0.00	R 271.49	R 0.00	R 0.00	R 0.00	R 2,744.26	R 0.00	R 3,015.75
Bedding Packs	R 0.00	R 0.00	R 0.00	R 13,897.88	R 0.00	R 0.00	R 0.00	R 2,520.00	R 0.00	R 16,417.88
Toiletry Packs	R 0.00	R 0.00	R 2,195.97	R 0.00	R 0.00	R 0.00	R 0.00	R 245.00	R 0.00	R 2,440.97
Software	R 0.00	R 7,556.78	R 0.00	R 24,500.00	R 0.00	R 32,056.78				
Prizes	R 0.00	R 0.00	R 5,719.18	R 0.00	R 5,719.18					
MATHSUP - Transfer	R 0.00	R 300,000.00	R 0.00	R 300,000.00						
MASLP - Transfer	R 0.00	R 0.00	R 0.00	R 100,000.00	R 0.00	R 200,000.00	R 200,000.00	R 0.00	R 0.00	R 500,000.00
MASEPP - Transfer	R 0.00	R 60,000.00	R 60,000.00							
Bursaries	R 0.00	R 0.00								
Miscellaneous Transfers/Expenses	R 0.00	R 0.00	R 2,254.00	R 0.00	R 1,268.38	R 0.00	R 38.76	R 0.00	R 87.30	R 3,648.44
Balance C/F	R 491,000.00	R 20,000.00	R 264,592.65	R 146,451.86	R 319,002.76	R 98,393.19	R 98,354.43	R 121,087.49	R 58,694.39	R 1,617,576.77
	R 491,000.00	R 320,000.00	R 320,000.00	R 264,592.65	R 346,451.86	R 319,002.76	R 298,393.19	R 158,354.43	R 121,087.49	R 2,638,882.38