

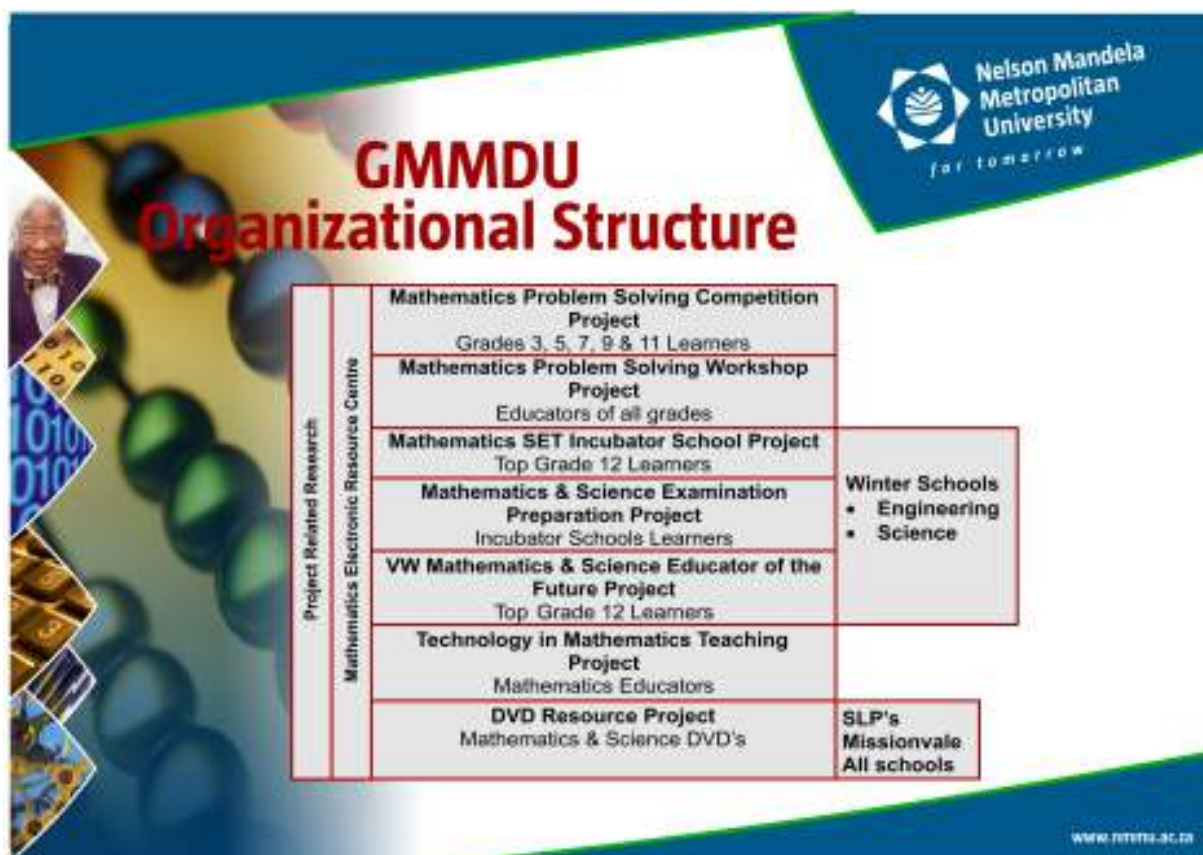
# Govan Mbeki Mathematics Development Unit (GMMDU)

## Report for the period January – August 2009

### Introduction:

This is the first report for 2009 on the activities of GMMDU. The report will cover the delivery of the project events that took place during the period January – August 2009. Included in the report will also be press releases as well as coverage given to the various Mathematics projects in our in-house staff newsletter, talk@nmmu. It is to be noted that exposure and well earned recognition was given to SASOL as Sponsor of these very worthy and much needed Mathematics and Science development programmes in our region.

The scope of the 2009 GMMDU activities is featured in the following diagram:



This report will briefly give feedback on the following:



- Launch of GMMDU.
- Mathematics Skills Upgrade Program (MATHSUP) development for In-Service FET Mathematics Educators.
- Mathematics and Science Incubator School Projects.
- Dinaledi Workshop and DVD distribution Project.
- Annual Mathematics Problem Solving Competition.
- DVD Resource Science and Maths development Project.
- Media Exposure and public interest in GMMDU projects.
- The Way Forward.

## Launch of GMMDU

The newly established GMMDU was launched on February the 12th 2009. The unit is named after struggle hero Govan Mbeki who said the South African youth must study Mathematics and Science in order “to be a winning nation”. At the launch function Dr Hennie Boshoff, see photograph below, gave an overview of the Govan Mbeki SASOL Maths Development Programme (GMSMDP) 8-year long history as well as some activities of the GMMDU planned for 2009.



As previously stated the objectives of the unit are to promote mathematical (primary focus) and science (secondary focus) expertise and awareness amongst school educators and learners and to develop Mathematical content knowledge and skills amongst educators and learners mainly, but not exclusively, at the FET level.

It was emphasized that through generous sponsorships from mainly SASOL (4.05 Million Rand since 2002) and VWSA (1.06 Million Rand over the past of 3 years), various new Projects could be linked to the GMSMDP, namely: These include **SASOL SET Incubator School Project** for Grade 12 Mathematics learners and the **VWSA Educator of the future Project** for Grade 12 Mathematics and Science learners and most recently, the **DVD Resource Project** and **Mathematics Skills Upgrade Project** for in-service educators.

The positive impact of the DVD delivery Model to learners during 2007/8 has resulted in a rapid expansion of projects and a decision to formalise the then GMSMDP. That led to the decision to register the development programme as a Unit within the formal Entity structure of the Nelson Mandela Metropolitan University (NMMU). This step was taken in order to ensure sustainability, establish continuity and to accommodate accreditation of projects.

### **Mathematics Skills Upgrade Programme (MATHSUP)**

Various reports indicate that standards in Mathematics and Science teaching and learning in schools are seriously lagging behind. Due to the serious shortage of qualified motivated Mathematics educators and new challenges of the NCS Syllabi, two formal credit-bearing Short Learning Programmes (SLP's), which constitutes the MATHSUP project, were registered during 2008.

The MATHSUP aims to empower in-service Mathematics educators to teach the new NCS Mathematics syllabi with confidence and understanding; to generate their own teaching resources for use in Mathematics classrooms and to integrate the use of technology in the teaching and learning classroom environment. The NCS Mathematics DVD Series that was developed during 2008 forms the main delivery vehicle for each SLP.

A group of 120 educators enrolled in January 2009 for both the 2009 MATHSUP SLP's. Of these sixty educators are from the Nelson Mandela Metropolitan region while two additional groups of thirty educators each are from the Mhlatsha and George regions. The two short learning programmes of this project cover the content of the new NCS Mathematics syllabus for the FET band. Each SLP is conducted over five phases. Below is an indication of the delivery structure and time-lines for the first SLP that was completed in June.

- Phase 1:** An **initial block contact period of 7 days** took place during January 2009 for the PE-group and during Autumn Recess period for the Mhlatsha and George groups. At the start of these periods a formal **pre-test** was administered.
- Phase 2:** A **first follow-up day session** took place towards the end of April during which time students wrote a major test and participated in a technology workshop.
- Phase 3:** A **second follow-up day session** took place towards the end of May during which time the focus was on the facilitation of examination preparation.
- Phase 4:** A final 3-hour **examination and post-test** was written on Friday 19 June 2009.
- Phase 5:** A **ceremony**, during which NMMU SLP certificates will be awarded, is planned for November of 2009.

Phase one for SLP2 was completed during the Winter Recess while phase two for SLP2 was completed on Saturday 29 August 2009. As part of the planned **project related research** activities of the GMMDU, pre- and post- test results will be compared to establish the impact of these short learning programmes. This will be reported on as soon as results became available.



- NMM group was facilitated by Dr Hennie Boshoff.
- Fifty-one of the original sixty educators passed the first SLP.

**NMM MATHSUP Group**



**George MATHSUP Group**

- George group was facilitated by Dr Marguerite Walton from the NMMU Maths and Applied Maths Department.
- Seventeen of this original group of twenty-eight educators passed the first SLP.
- Two failed and ten, mainly current maths literacy educators dropped out.



**Mhtatha MATHSUP Group**

- Mhtatha group was facilitated by Mr Ajmer Grewal from Walter Sisulu University.
- Twenty-four of the original group of twenty-five educators passed the first SLP.



**Interactive Facilitation Session**



**Educators with DVDs after Exam Prep**



**Hard at work during Technology WS**



**Hard at work during SLP1 Final Exam**

Each MATHSUP educator received the following **resources**:

- **Module Guideline** which contained general information about the facilitator; important time-lines; rationale behind these SLP's; mark policy details; guidance on how to study for this module and a daily work schedule.
- Complete **study guide** which contains copies of all the PowerPoint slides which form the backbone of the Maths DVD series together with clear outcomes for each DVD topic.
- A hard copy compendium of **topic exercises** together with model **solutions** designed by an NCS Mathematics expert.

- Twenty Eight Mathematics **content DVD's** in which the focus is on Learning Outcomes from the FET NCS Mathematics Curriculum.
- Two **revision DVD's**, in which Basic Algebra principles and the Factor and Remainder Theorems are revised.
- Four **examination preparation DVD's** linked to Grade 12 exemplar and national examination papers.
- Two **technology support DVD's**, each linked a SLP.
- **Resource CD** containing all the content and revision PowerPoint lessons.
- Standard Grades 11 and 12 NCS **Mathematics Resource Texts**.
- A list of useful **web links** for reference and further support for each topic designed by Prof Werner Olivier.

### **Delivery strategy during 7-day contact period**

An interactive plan was followed during each contact DVD-session. Topics were mostly facilitated by means of the PowerPoint versions of each lesson. During the DVD micro-lesson sessions educators were given the opportunity to interact with the learning material through tutorials which are integrated in the lesson designs. Educators were constantly encouraged to view the problematic sections discussed during the day on a repetitive basis during their self study-period. In addition it was expected of educators to complete the additional exercises during the self-study period – solutions to these exercises were distributed only after educators have attempted these on their own.

### **Assessment**

Five tutorial tests, with a weight of 50% towards the Class Mark, were written during the 7-day contact period. Tutorial Tests were marked by an assistant, and returned to the students together with memorandum before the end of each day. A comprehensive major test, with a weight of 50% towards the Class Mark, was written at the start of the first follow-up session. Final assessment was in the form of a 3 hour summative examination and post-test.

## Technology Workshops

For each SLP, a technology workshop was presented as a follow-up presentation. During these sessions gained hands-on experience in the use of Maths software packages like Autograph, Geometer Sketchpad and Mathtype. In addition each educator received a specially designed technology DVD linked to each SLP as part of the classroom implementation plan.

Although the technology component of the SLP was received with excitement and appreciated by educators, the successful classroom implementation of the **DVD-model** within the framework of Blended Learning would to a large extent depend on the availability of the essential technology in the Mathematics Classroom.

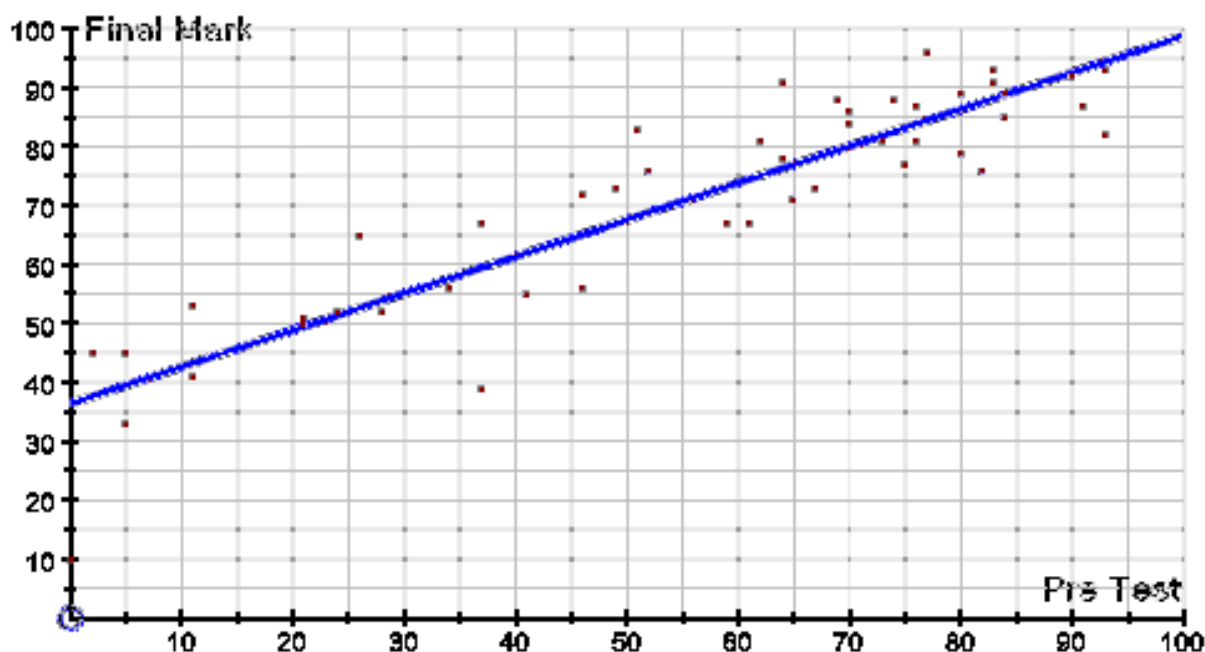
## Feedback and Initial Impact of MATHSUP

- Through this MATHSUP pilot project the DVD Model was facilitated to educators linked to **73 schools** (see table below) in the Eastern Cape Province. If it is taken into account that there are on average at least 50 grade 11 and 50 grade 12 mathematics learners per school then **7 300 learners** benefited from this intervention.

<b>Groups</b>	<b>Number of Schools</b>
PE	37
George	15
Mhtatha	21
<b>TOTAL</b>	<b>73</b>

- If the first SLP pre-test results for the NMM group are compared with their final results then it is obvious that the first SLP led to a remarkable improvement in the mathematical performance of these educators.





The best fit linear regression line indicates a positive improvement of the final performance of these educators in comparison with initial pre-test results before the SLP intervention. Further more with a correlation coefficient of 0.907 the implication is that 82% of the final marks can be predicted from pre-test results as a result of the SLP intervention.

- Results from a questionnaire survey (see table below) clearly demonstrate a positive attitude of participating SLP educators with respect to the MATHSUP intervention.

		FREQUENCIES					
		Below expectations	Minimum expectations	Average	Good	Excellent & outstanding	NA
1.1	Clarity of course objectives	1	0	1	36	57	1
1.2	Relevance of content to the course objectives	1	1	1	28	63	2
1.3	Relevance of content to the actual work situation	0	0	3	31	59	3
1.4	Appropriateness of examples made	1	1	7	36	49	2
1.5	User-friendliness of the training manual	1	0	3	39	50	3
2.1	Appropriateness of presentation methods	1	0	7	47	37	4
2.2	Balance of different kinds of learning situations: group work, individual work, etc.	1	4	18	43	24	6
2.3	Use of presentation tools	1	0	2	35	56	2
2.4	Involvement of participants	0	4	13	57	20	2
2.5	Allocation of times for reflection, questions and discussion	2	4	11	50	27	2

## **Mathematics and Science Incubator School Projects**

### **Learner Selection**

Grade 11 Mathematics learners from forty-five schools in the Nelson Mandela Metropolis were during the third term of 2008 invited to apply for admission to the 2009 Mathematics and Science Incubator School Project for Grade 12 learners. A total of 450 learners applied for admission. Learners had to submit their June 2008 and November 2008 examination marks for both Mathematics and Physical Science with their initial application. All this data was captured in a data base during 2008.

During January 2009 all 450 learners were invited to write a pre-test in both Mathematics and Physical Science at the NMMU Missionvale Campus. The aim of the pre-test was to establish the grade 11 Mathematics and Physical Science knowledge levels for each of these 450 learners. Pre-Test results form an integral part of ongoing research studies. On the basis of all this data 194 learners were invited to attend the Saturday Incubator School deliveries.



**Learners writing Mathematics Pre-Test during January 2009**



**Learners from 10 of the 45 schools which turned up to write the pre-test**

Mathematics pre-test formed part of a PhD research project by Ms Pragashni Padayachee entitled: "Using action research to investigate a DVD driven model for teaching and learning mathematics at secondary school level within the framework of blended learning".

The pre-test will be used as a research tool. Firstly for diagnostic purposes to indicate common problem areas in mathematics which learners experience? These issues will be raised during the contact sessions by facilitators. Secondly both the experimental group as well as the control group will write a post test at the end of 2009. These results as well as their final grade 12 mathematics marks will be compared in evaluation of the blended learning program.

### **Launch of the 2009 Incubator School Project**

The Mathematics Learner Project was launched at the Missionvale Campus on 21 February 2009 and was attended by various VIP's and learners.

Two of the top 2008 Learner Project learners, Mohammed Laher and Lucky Mgole, were invited to motivate the 2009 learners during the Launch Function. Both these gentleman are currently furthering their studies at NMMU.



**Mohammed Laher**



**Lucky Mgole**

## **Delivery of Incubator School Project**

The program was offered at our Missionvale Campus over a period of 14 Saturday sessions and commenced on the 14 February 2009 and the final session was on Saturday 8 August 2009. All learners received facilitation in Mathematics and Physical Science by means of the DVD model. All learners and participating schools received a full set of both the Mathematics and Physical Science DVD Series. Typical Saturday programme is indicated below:

- 08:00 – 08:30: Mathematics Test
- 08:30 – 09:30: First Mathematics Session
- 09:30 – 10:30: Second Mathematics Session
- 10:30 – 11:00: Refreshment Break
- 11:00 – 11:30: Physical Science Test
- 11:30 – 12:30: First Physical Science Session
- 12:30 – 13:30: Second Physical Science Session

## **Support Staff**

Dr Nico Govender acted as Quality Controller for all three the schools. The support staff linked to each school consisted of a coordinator, Mathematics and Physical Science senior facilitator together with a team of Mathematics and Physical Science student assistants.



**Senior Support Staff for the 2009 Incubator Schools**

## **Learners in the Classroom set-up**



Coordinating of the groups went well and report back was received punctually. Each of the groups had the use of 2 Data Projectors, a DVD player and a Tablet PC. This equipment formed part of architecture in the facilitating of DVD driven model.

## **Examination Preparation and Winter Schools**

The Science exam preparation took place during the winter recess period. A group of 58 learners was selected to attend the Engineering Winter School during the first two weeks of the Winter Recess at the North Campus. During this two week period they attended Science Exam preparation sessions.

During the first week of the Winter Recess most of the learners not selected for the Engineering Winter School attended a Science Winter School at the South Campus. The Science Winter School learners attended their Science Exam preparation sessions during the second week of the Winter Recess at the Missionvale Campus.



### **Learners attending the Engineering Winter School**

The Mathematics exam preparation sessions were facilitated on the 15<sup>th</sup> and 22<sup>nd</sup> August 2009 at the Missionvale Campus by Prof Olivier and Dr Boshoff.

### **Combined Awards Functions**

The awards function took place on the 8<sup>th</sup> August 2009. A number of 147 certificates were awarded to learners. From those awarded, a number of 51 learners had a 100% attendance record.

Each and every student received a beanie and the “Encyclopaedia of Science & Technology” sponsored by SASOL. In addition the top 15 students received the “Eyewitness Invention” sponsored by SASOL.



**Top student: Faith Nazer receiving her prize from Mr Moss from VSWA**



**Top fifteen 2009 Incubator School Learners**



## Dinaledi Workshop and DVD distribution project

### SASOL DINALEDI DEVELOPMENT

- During July Recess
- Pilot Series roll-out to 8 Provinces



- Due to SASOL Sponsorship
- 438 Pilot Series Maths Sets
- Will be placed in Dinaledi Schools



Negotiations with the DoE to facilitate the DVD Mathematics Model to Dinaledi Educators began with a meeting between SASOL, the DoE and Prof Olivier and Dr Boshoff on the 13<sup>th</sup> May 2009. The GMMDU was subsequently requested to address and present the DVD Mathematics program at the workshops to be hosted in seven different Provinces. The workshops were planned and held from the 5<sup>th</sup> to the 10<sup>th</sup> of July 2009.

Prof Olivier visited and presented the teaching and learning model to groups of Dinaledi educators from Northern Cape, North West and Western Cape Provinces during Dinaledi Workshop sessions during the second week of the Winter Recess.

Dr Boshoff did the same during his visits to the Eastern Cape, Free State, Limpopo and Mpumalanga Provinces.

Once the contract has been finalised, the following materials would be made available to the Educators and be sent to the DoE for distribution,

- 14 x Grade 11 and 12 Learning outcomes 1 and 2 DVD's
- 14 x Grade 11 and 12 Learning outcomes 3 and 4 content DVD's
- Two resource texts linked to each of the two DVD's above

### **Annual Mathematics Problem Solving Competition**

An invitation was extended to all the school who previously participated in the prestigious Mathematics Competition. The first round of the competition was written at the relevant schools on the 24<sup>th</sup> July 2009.

The following number of students participated in the first round:

- Grade 3	:	789
- Grade 5	:	1967
- Grade 7	:	2236
- Grade 9	:	959
- Grade 11	:	<u>864</u>
- <u>Total Number</u>		<u>6806</u>

Of the 6806 we can presume that a third would eventually make it to the final round, making it a total number of  $\pm 2500$ .

We are busy compiling the marks and preparing the lists of students invited to write the final round. Hosting schools would be notified shortly of the number of learners involved and relevant documents would be dispatched to reach them on time for the final round to be written on the 4<sup>th</sup> September 2009.

The prize giving has been scheduled for the 23rd of October 2009 and we are looking forward in having our valuable sponsor, SASOL present as well as invited VIP's to this very prestigious event.

## **DVD Resource Science and Maths development Project**

### **Development of Physical Science Content and Experiment DVD Series**

This year, through the generous sponsorship of SASOL and the NMMU Trust, saw the development of a pilot 28 Physical Science DVD Series as well as the completion of a pilot phase Physical Science DVD Experiment Series. Physical Science DVD Series was during 2009 utilised for the first time in Physical Science Incubator School deliveries.

### **Upgrading of Pilot Maths and Science DVD Series**

## **CURRENT AND FUTURE DVD DEVELOPMENT PLANS**

- Initial research results indicate a positive impact of the DVD model within the framework of Blended Learning.
- Upgrading of existing pilot series of DVD's before 2010 .
- Upgrading to acceptable International Standards.
- More user friendly for easy implementation in as many as possible Grades 11 and 12 classrooms throughout the country.
- Skills upgrade Short Learning Programmes also for In-service Educators in Physical Science planned for 2010.
- DVD's could be utilized in NMMU Missionvale Maths & Science Plan?

## UPGRADING OF CURRENT MATHEMATICS AND PHYSICAL SCIENCE CONTENT DVD SERIES



- Series of Grade 11 lessons.
- Series of Grade 12 lessons.

- Greater visual clarity
- Even more user friendly format for use in any Grade 11 & 12 classroom.
- Lessons that are designed to be in line with school pace-setters.
- More additional exercises with each lesson are available.

## UPGRADING OF CURRENT PHYSICAL SCIENCE DVD EXPERIMENT SERIES



- DVD containing Grade 11 Physics Experiments.
- DVD containing Grade 12 Physics Experiments.
- DVD containing Grade 11 Chemistry Experiments.
- DVD containing Grade 12 Chemistry Experiments.

Quality assurance by recognized National Experts.

- Pre- and Post- Experiment discussions.
- Comprehensive menu system.
- Assessment grids with each experiment.

The pilot Physical Science, content and experiment, together with the existing pilot Mathematics DVD Series needs to be **upgraded before 2010 interventions**. This upgrading process is necessary to bring all these series in line with international standards and to make it more user-friendly for classroom implementation.

GMMDU with the assistance of National experts is currently busy with the upgrading process and is hopeful that with the necessary financial support from sponsors to complete this process by the end of 2009.

## Media Exposure and Public interest in GMMDU Projects

Report on DVD impact at the end of 2008 and Physical Science DVD development in 2009 (Weekend Post of 20 June 2009)

# It figures: maths lessons on DVD

**STOPPING THE GAP:** Bay academics produce series to help address shortage of mathematics and science teachers

Nicky Wilmer

WEEKEND POST CORRESPONDENT

A DVD series of maths lessons developed for Grade 11 and 12 pupils by a pair of Nelson Mandela Bay maths buffins is proving a phenomenal success with students seeing a dramatic improvement in their marks.

One pupil taking part in an "incubation school" programme using the DVDs went from 42% in maths at the end of Grade 11 to an astonishing 88% in matric.

The shortage of well-trained maths and science teachers across the country has serious repercussions for pupils – many cannot attain the marks needed to get into university and those who do sometimes struggle to cope.

To address the problem, which mostly affects previously disadvantaged schools, Nelson Mandela Metropolitan University mathematics academics Dr Dennis Boshoff and



**The group, all from disadvantaged backgrounds, produced 30 As, 31 Bs and 28 Cs in their final Grade 12 maths exams**

Prof Werner Olivier have developed the DVD series which has already produced outstanding results.

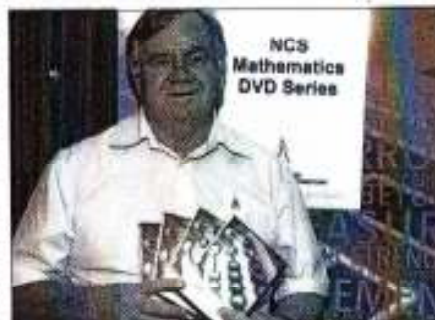
Of the 120 pupils who completed the 14-week incubation school programme last year, 72% obtained maths marks good enough for selection into science, engineering and technology programmes at tertiary level. The group, all from disadvantaged backgrounds, produced 30 As, 31 Bs and 28 Cs in their final Grade 12 maths exams.

Boshoff, working closely with Olivier, is also running

short learning programmes to upgrade the maths skills of teachers across the Eastern Cape. The aim of these programmes, which are based on the DVDs, is to help thousands more pupils across the province. "Maths and science are lagging in South Africa because of the quality of teaching. Many teachers are unqualified or under-qualified," said Boshoff.

The incubation schools, run on Saturdays by the Govan Mbeki Mathematics Development Unit at NMMU, began in 2004. They evolved from conventional lessons delivered by teachers to PowerPoint lectures and, in 2007, culminated in the animated PowerPoint audio-graphic DVD series. What the matric syllabus changed last year, a new DVD series was designed and recorded.

"There are now 30 DVDs, based on the Grade 11 and 12 compulsory curriculum. Not only do the participating pupils have access to the DVDs, but



**OUT THE BOX:** Nelson Mandela Metropolitan University mathematics academic Dr Dennis Boshoff with some of the lesson DVDs.

each participating school receives a full set of the DVDs with the intention to make it available to other mathematics pupils not participating in the programme. Just about all the kids have access to a DVD

player. That's why it's working."

This year, there are three incubation schools in Missionvale, with more than 60 pupils in each. In previous years, there have also been schools in

George, Plettenberg Bay, Mossel Bay and Uitenhage.

Pupils, who must apply to complete the programme, are selected on the basis of their Grade 11 results and their intention to study further in the areas of science, engineering and technology. "We are trying to improve not only the quantity, but the quality of matric pass rates and, ultimately, university through-pair rates – we want better students."

At the request of Sasol, one of the major sponsors of the programme, Boshoff introduced a similar science programme in 2007, and is in the process of completing a series of science DVDs. A separate DVD series, containing all the Grade 11 and 12 experiments, is available and can be used by teachers.

The incubation school programme has to date reached almost 1 000 pupils in Nelson Mandela Bay.

Report on Launch of MATHSUP in NMM (Algoa Sun of 26 February 2009)

February 26, 2009 ALGOA SUN Page 5

# University helps maths teachers

Programme focuses on new topics in the syllabus and the latest technology

**SARAH BURNAN**

THE Eastern Cape's annual mathematics programme (NMMU) helped teachers come help to finish the year with their pupils.

More than 80 teachers from 15 schools across the province have attended for a structured skills upgrade programme that the NMMU started last month.

NMMU head of Department for Mathematics and Applied Mathematics, Professor Nancy Oliver, said that the programme consisted of two structured mathematics (Math Learning Programme) (MLP) which covers the content of the new mathematics syllabus for Grades 10 to 12.

"Each MLP will be delivered over a semester and starts with a profiling exercise to help period students followed by several follow-up workshops and final written exams," she said.

Oliver said that at the end of the programme, the MLP will be completed with a final assessment to ensure that all the programme objectives are met.

Teachers had to apply to the university to attend the MLP.

MLP's were used as learning material.

"We used the MLP model with Grade 12 learners in disadvantaged areas and it was a great success. We have just completed this pilot by teaching the material to the teachers in their own schools," she said.

Oliver said that research projects to measure the impact of the Maths Skills Upgrade Programme (MATHSUP) will be placed in a national pilot and pilot areas will also be used to demonstrate the improvement in the skill levels of the participating educators.

"Educators and other stakeholders are encouraged to support the programme that was developed in the maths department of NMMU as an extension of the community focused mathematics programme that are being offered with the Nelson Mandela Mathematics Development Unit," she said.

Teachers need to look out thousands of needs to attend the programme, which has been sponsored by the MLI Alliance.

Oliver added that by promoting the programme, NMMU was ensuring better quality secondary applications in the future.

"Our education department is having a pilot attached to ensure the best possible results. Our teachers are not familiar with the new syllabus and we wanted to change that. We want to familiarise them with fairly new topics in the syllabus," she said.



NMMU is offering free mathematics programmes for teachers in the metro and surrounding areas in an attempt to improve the quality of education in the Eastern Cape. More than 80 teachers have already attended for the MATHSUP this year.

Launch of MATHSUP in George Area (Burger of 14 February 2009)

Die Burger 14/02/2009

SUID-KAAP

## 'EKSTRA KLASSE' NMMU wil onderwysers wiskunde leer

**YERHA STEYN**  
George

'N Wiskundeleser van onderwysers kan daer help om leerders se wiskundeop te steel.

Die Nelson Mandela Metropolitaanse Universiteit (NMMU), wat die afgelope drie jaar ekstra klasse vir matrusantse aangebied het, gaan die program uitbrei na onderwysers om hul lesvaardighede op te skerp.

"Die doelwit was die matrusantse program was dat leerders wat skool se wiskunde leer, hulle se prestasie se nader verbeter dat hulle aan die einde van 'n skool se wiskunde-opleiding in te skryf," het mnr. Harry Gird, voormalige wiskunde-onderwyser aan die Hoërskool Punt in Mosselbaai, sê.

"Intussen is bewys dat die projek wat net op leerders gerig is 'n baie beperkte toekoms het. Daar is voorgestel dat die probleem van onderwysers is wat nog moeilik om te wiskunde-lesers in die hoërgrade te agmerk het na die onderwysers se die toekoms-opleiding kry, en soveel meer leerders in wiskunde prestasie."

Volgens Gird is borge verkry en die eerste proeflesse het reeds in Port Elizabeth begin waar 'n groep onderwysers in die skole by die NMMU geregistreer het om in die eerste sessie van sewe dae intensief opleiding te.

Hulle het eers 'n reeks sessies op DVD-ontvang wat hulle gedurende die kwartaal moet afsluit. 'n Meerderheid van onderwysers in April is hulle 'n standaardleser om 'n sertifikaat te verkry.

"Hierdie opleiding sal ook gratis word as deel van 'n B-BBEE-gevoelens word hulle later kan beskryf as hulle verbe wil uitsoek."

Prof Bernis Boshoff van die NMMU se Port Elizabeth-kampus sê dat 'n oombliking oor die jaar was by die Town Lodge by die Garden House Mall daer.

Bel Gird by 071 178-8778 vir meer inligting.

The Staff Newsletter
27 August 2008
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### Flying start for MATHSUP

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**MORE** than 60 practicing Grade 10 to 12 Mathematics educators from the Nelson Mandela metrozone have enrolled for a structured skills upgrade programme.



**UPPING SKILLS** ... The first group of practicing Maths educators enrolled for the first of two Mathematics Short Learning Programmes. The first contact sessions were presented by Dr Neville Scofield of the Mathematics and Applied Mathematics Department on South Campus in early January.

The programme, which started in January, consists of two structured Mathematics Short Learning Programmes covering the content of the new National Curriculum Statement (NCS) Mathematics syllabus for the Further Education and Training (FET) band.

Each programme is delivered over a semester, starting with an intense seven-day contact period followed up by several workshops and a final written examination. Once successfully completed, the programmes will be recognised by an NMMU certificate and will carry credits towards an official degree programme in education.

Apart from structured support via an innovative teaching model that uses DVD support and an interactive web blog, educators will also be empowered to use the latest technology to teach Mathematics in the classrooms.

Research projects will measure the impact of the programmes and structured pre-and post-tests will also demonstrate the improvement in the skills levels of participating Mathematics educators.

The current group of educators will also receive a comprehensive sponsored package of resource material for classroom use. A number of companies have shown interest to support this intervention to help address the current skills crisis in the FET Mathematics classrooms. Plans are also in place to enrol more groups of practicing Mathematics educators for the programmes in the near future.

## Taking Maths to where it counts

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NMMU is leading the way with outreach projects



***"Our South African youth must study Mathematics and Science in order to be a winning nation."***

**NMMU is leading the way nationally with various ground-breaking outreach projects aimed at improving the standard of maths among teachers and learners in South Africa.**

As a result of the wide-ranging efforts to make a difference against a backdrop of dismal maths and science results at school level, NMMU launched the Govan Mbeki Mathematics Development Unit last month.

The unit is named after struggle hero Govan Mbeki who said the South African youth must study Mathematics and Science in order "to be a winning nation".

To date, the unit which operates under the jurisdiction of the Department of Maths and Applied Maths is involved with the following projects:

- Problem-solving workshops
- FET Incubator School
- Mathematics competition
- Technology workshops
- Exam preparations
- Educator upgrade programmes
- Engineering winter school



Two new initiatives are the introduction of a Science DVD series (see accompanying story) and two short learning programmes (SLP) for teachers who wish to upgrade their skills in maths.

The new SLP which has the financial backing of concerned industry players, was warmly welcomed by teachers.

More than 60 Grade 10 to 12 teachers have enrolled for the first SLP programme.

Each course is delivered over a semester, starting with a gruelling seven-day lecture period followed by several workshops and a written examination.

These teachers come mostly from the same schools as the top learners in the incubator school programme.

"We're very exciting about all our new projects. The results will hopefully speak for themselves," said **Dr Hennie Boshoff** who, along with **Prof Werner Olivier**, have been responsible to driving the various, integrated projects.

Interest in this year's Incubator Schools project for Grade 12 Mathematics and Science learners has been described as "phenomenal".

The selection process for the project began in October last year and was finalised last month.

More than 200 learners selected from over 500 applicants from 42 high schools in the PE/Uitenhage district are involved in the project.

"The focus is on learners with potential from previously disadvantaged schools and a keen interest in science, engineering and technology," said Prof Olivier.

He believed this blended learning approach (the use of mixed teaching methods and media) was "the way to go". Last year's results speak for themselves, said Prof Olivier.

Many of the students who had been part of the various incubator school initiatives were now NMMU students.

Both academics were quick to point out that the university would not be able to make such a difference without the financial backing of VWSA and Sasol. Together they had invested more than R3m in recent years.

"This is a shining example of partnerships that really work. Such partnerships need to be expanded and encouraged."

## Results add up

73% of learners who formed part of a pioneering DVD initiative in 2008 achieved a mark enabling them to study a maths or science-based degree programme.

This percentage is all the more remarkable when viewed against the disadvantaged school learners' Grade 11 marks with some jumping from 40 to 80%.

Of the 156 learners who watched the 30-interactive maths DVDs, 114 (or 73%), had qualified to study degrees in the fields of engineering, science and technology.

"We are growing our own future candidates," said Dr Hennie Boshoff, who is part of the pro-active Department of Mathematics and Applied Mathematics.

## New DVD offered

**SCIENCE** is now being offered to learners in a DVD format similar to that successful maths project.

The introduction of the interactive DVD for science that includes a DVD devoted solely to experiments is another first for NMMU.

"We are simply trying to meet a need."

Like the maths project, compiling the lesson-by-lesson DVDs for science is neither simple nor inexpensive.

Dr Boshoff said NMMU was only able to impact positively on those needing assistance because of the financial backing of the NMMU Trust and leading sponsors.



ABOVE: Some of the 150 learners who benefited from the Nelson Mandela Metropolitan University's mathematics and science project.

## 'No maths and science - no future'

A long journey which started in October 2008 came to a conclusion last Saturday when 150 learners from 42 schools were rewarded for their participation in mathematics and science classes.

The classes were presented by the Nelson Mandela Metropolitan University's Govan Mbeki Mathematics Development Unit (situated in the Department of Mathematics and Applied Mathematics).

The classes comprised three learner groups, one sponsored by VWSA (called the Educators for the Future Project) and the other two for Science, Engineering and Technology, sponsored by SASOL.

The groups received mathematics and

science lessons based on modern and innovative DVD series which were in line with the new curriculum for the Further Education and Training (FET) band.

The classes were held at the Missionvale Campus of the NMMU and lessons were facilitated by experienced mathematics and science experts. The facilitators were assisted by suitably qualified university students who helped give the learners more individual attention.

A crowning glory has been the allocation of 20 bursaries, each worth R20 000, by the NMMU for deserving learners in the project to study in the faculty of science at NMMU in 2010.

**The Way forward**