



UNIVERSITY OF NATAL

DURBAN CAMPUS

AMENDED

DURBAN

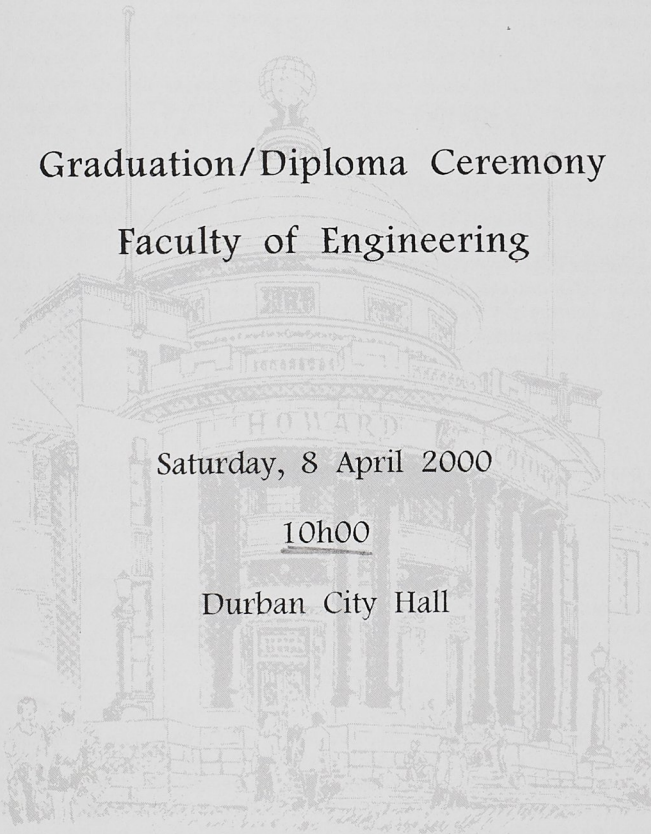
Graduation/Diploma Ceremony

Faculty of Engineering

Saturday, 8 April 2000

10h00

Durban City Hall



The Chancellor

“Chancellor” is an office that goes back to antiquity: the original Chancellor or *cancellarius* (as the office was known) regulated access to the Roman Tribune. In medieval times, the office became associated with the heads of the writing departments of the early kings. Because so few people were literate, a chancellor was necessarily learned. This is why the heads and spokespersons of the early universities were also accorded the title. More recently, the office has become largely symbolic. The executive head of a university is its vice-chancellor.

Justice Pius Langa is the sixth Chancellor of the University of Natal. His predecessors are: The Honourable D G Shepstone (1949-1966), Dr G G Campbell (1967-1973), Dr B A Armitage (1973-1983), the Honourable R N Leon QC (1983-1992), and Archbishop D E Hurley (1993-1998).

The Mace

The Chancellor's Mace is used on ceremonial occasions presided over by the Chancellor and is regarded as the Chancellor's “staff of office”. It symbolises the University's protection of its Chancellor.

The use of the mace as a symbol of authority has a long history. The head of a copper mace, which apparently dates back to the 12th Century before Christ, has been excavated at Beyce Sultan in Asia. In the early centuries, churchmen who went to war often carried a mace in preference to a sword. One side of the mace-head was beautifully decorated with the owner's emblem and on the other side was a large knob which served as a weapon, but was always round as a reminder of church law forbidding the shedding of blood. In the early centuries the mace was a symbol of the king's authority. During the power struggle between the king and the Commons in the 13th Century, the king gave the speaker the mace as a symbol of his indemnity against arrest.

The Mace was designed by Mr G H Atkins, senior lecturer in sculpture in the University's Department of Fine Arts. The Mace was made in England, it was first used at the 1970 graduation ceremonies.

The Armorial Bearings (see front cover)

The armorial bearings of the University of Natal were awarded by the College of Arms in London.

The two black wildebeest come from the arms of the Province of KwaZulu-Natal. They are shown in full course to symbolise movement and progress. The two open books represent the universal heritage of knowledge and the two centres of the University, Durban and Pietermaritzburg. The five pointed star refers to the naming of Natal by Portuguese navigators when they landed for the first time at Durban on Christmas Day in 1497. *Stella Aurorae* (star of the dawn) symbolises the role of the University in bringing to light new knowledge and spreading the enlightening influence of education.

Academic Dress

The wearing of gowns by judges, ministers, teachers and scholars is an ancient and significant custom. When the graduating students at universities receive their diplomas or degrees, they, too (and for some, only once in their lives) wear the caps and gowns and so participate in this long tradition. By wearing the ancient regalia, they join hands with students past and students present.

In modern academic ceremonies the standard cap and gown are almost universally worn. Of all the components of the costume, the hood conveys the greatest amount of information: it makes clear the level of the degree, the faculty in which it was given, and the institution which awarded it.

Convocation

After being capped by the Chancellor, each graduate moves across the stage and hands the hood to the President of Convocation (or representative). The President places the hood upon the graduate's shoulders. At the end of the ceremony, after the Chancellor's procession has left the stage, the President leads a procession of the new graduates out of the hall, row by row, to symbolise their acceptance into, and future membership of, the Convocation of the University of Natal, the statutory body through which graduates have the opportunity to play a continuing role in the affairs of the University.

OFFICERS

Chancellor	The Honorable Justice P N Langa Deputy President of the Constitutional Court <i>Bhuris, LLB(Unisa), LLD(honoris causa)(UNIZUL)</i>
Vice-Chancellor	B M Gourley <i>CTA(Witwatersrand), MBL(Unisa), HonLLD(Nott)</i>
Chairman of Council	A Rogoff <i>CA(SA)</i>
Senior Deputy Vice-Chancellor	D A Maughan Brown <i>BA(CapeTown), MA(Cantab), DPhil(Sussex)</i>
Deputy Vice-Chancellor (Academic)	A C Bawa <i>BSc(Unisa), BSc(Hons)(Natal), MSc(UDW), PhD(Durham)</i>
Deputy Vice-Chancellor (Research and Development)	E M Preston-Whyte <i>BSocSc(Hons), PhD(Natal)</i>
Deputy Vice-Chancellor (Students and Transformation)	E A Ngara <i>BA(Hons), MPhil, PhD(London)</i>
Pro Vice-Chancellor (Director: Public Affairs and NUDF)	J D Volmink <i>BSc(Hons)(UWC), PhD(Cornell)</i>
Pro Vice-Chancellor	P M Zulu <i>BA(Hons)(Unisa), MSocSc, PhD(Natal)</i>
Pro Vice-Chancellor (Academic)	A M Kaniki <i>BALS(Zambia), MS(Illinois), PhD(Pittsburgh)</i>
Registrar	P M Malgas <i>BA(Hons)(UWC)</i>
President of Convocation	T Zietsman <i>BA(Natal), HED(Stell)</i>
Orator	D Herwitz <i>BA(Brandeis), MA, PhD(Chicago)</i>

DEAN OF FACULTY

Engineering	L W Roberts <i>PrEng, MScEng(Natal), PhD(London) DIC MSAIMechE, MASME</i>
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PROGRAMME

The Academic Procession enters the Hall

THE VICE-CHANCELLOR CONSTITUTES THE CONGREGATION

WELCOME TO GUESTS

The Deputy Vice-Chancellor (Academic)

ADDRESS

The President of the Students' Representative Council

PRESENTATION OF DOCTORAL GRADUANDS

The Dean

ADDRESS

The Vice-Chancellor

MUSICAL INTERLUDE

The University of Natal Chorale

Conductor: S E Mkhulisi, *BMus(Unisa), BA(Hons)(Natal)*

PRESENTATION OF GRADUANDS AND DIPLOMATES

The Dean

THE VICE-CHANCELLOR DISSOLVES THE CONGREGATION

NATIONAL ANTHEM

The Congregation is invited to join in the singing of the National Anthem

The Academic Procession leaves the hall, followed by the Convocation Procession

The congregation is requested to stand
while the procession enters and leaves the Hall

Only officially authorised persons may take photographs and record the ceremony
Please ensure that cell phones are turned off

Doctor of Philosophy in the Faculty of Engineering

Discipline

- Barry, Michael Brendan, BSc.MBA(CapeTown)**..... *Land Surveying*
 Thesis: Evaluating cadastral systems in periods of uncertainty: a study of Cape Town's Xhosa-speaking communities
 (Dr C Fourie)
- Judge, Garth, BScEng**..... *Electronic Engineering*
 Thesis: Protocols for voice/data integration in a CDMA packet radio network
 (Professor F Takawira)
- Naidoo, Valerie, MSc**..... *Chemical Engineering*
 Thesis: Municipal wastewater characterisation: application of denitrification batch tests
 (Professor C A Buckley)
- Pillay Narrainen, Rosy, BScEng**..... *Electronic Engineering*
 Thesis: Call admission control in CDMA cellular networks
 (Professor F Takawira)
- von Klemperer, Christopher Julian, MScEng**..... *Mechanical Engineering*
 Thesis: Optimisation of the process parameters of the resin film infusion process
 (Professor V E Verijenko, Professor E Morozov)

Master of Science in Engineering

Discipline

- Asmall, Ismail Goolam Hoosen, BScEng**..... *Electrical Engineering*
 Dissertation: Visual programming and run-time visualisation for motion control applications
 (Professor R G Harley)
- ✦ **Barnes, Andrew John, BScEng**..... *Agricultural Engineering*
 Dissertation: Simulation modelling of sugarcane harvest-to-crush delays
 (Professor A C Hansen)
- Esteves, Carlos Alberto Vaz, BScEng**..... *Civil Engineering*
 Coursework and Dissertation: The impact to Pinetown Municipality's road network resultant from a change in the permissible legal axle mass for vehicles in South Africa
 (Mr P R Everitt)
- Gardner, Grant Alex William, BScEng**..... *Chemical Engineering*
 Dissertation: Pinch analysis: as a tool for the management of products, water and effluent at a chloro-alkali complex
 (Professor C A Buckley, Mr C J Brouckaert)

✦ indicates degree awarded *cum laude*

Discipline

Gopal, Ajith Karamshiel, BScEng *Mechanical Engineering*
 Dissertation: Conceptual design of a cost effective low mass prop for stope support in the mining industry
 (Professor S Adali)

Hansen, Bronwyn Kathleen Ellen, BScEng *Electronic Engineering*
 Dissertation: In-line ISDN PABX monitoring system
 (Professor R C S Peplow)

Jennings, Ronald Brian, BTech(NATTEK) *Mechanical Engineering*
 Dissertation: Investigation into a computer-aided motion controller with vision control
 (Dr G Bright)

Mittermaier, Marion Petra, BSc(Pret) *Civil Engineering*
 Dissertation: Investigating the characteristics of the vertical reflecting profile
 (Professor G G S Pegram)

Mullan, David James, BScEng *Chemical Engineering*
 Dissertation: Modelling of the tubular filter press process
 (Professor C A Buckley)

† **Mundell, Fergus Norman, BScEng** *Electronic Engineering*
 Dissertation: Development of a high yield fabrication process for millimeter wave gunn diodes
 (Professor A D Broadhurst, Professor H D Reader)

† **Narotam, Nirmal Keshavlal, BScEng** *Chemical Engineering*
 Dissertation: Development of artificial neural networks for the modelling and control of chemical processes
 (Professor M Mulholland)

Reddy, Denesh, BScEng *Mechanical Engineering*
 Dissertation: Locomotive characteristic and application variation influence on train dynamics and train design
 (Professor S Adali)

† **Singh, Navin Runjit, BScEng** *Electronic Engineering*
 Dissertation: Multi-user demodulation for DS-CDMS systems in fading channels
 (Professor F Takawira)

Strachan, Lindsay Julian, HND(Civil)(NATTEK) *Civil Engineering*
 Dissertation: An investigation into biological treatment systems for landfill leachate
 (Professor H D Schreiner)

† indicates degree awarded *cum laude*

Discipline

✦ **van der Linde, Frederik J, BScEng** *Electrical Engineering*
 Dissertation: Parameters for a power frequency model of some deteriorated surge arresters
 (Professor D A Swift)

van Niekerk, Rory David, BScEng *Agricultural Engineering*
 Dissertation: Dynamic measurement system for tyre rolling resistance
 (Professor P W L Lyne)

✦ indicates degree awarded *cum laude*

Master of Science in Surveying

Zungu, Mduduzi Orville Sikhumbuzo, BA(Hons)(UZ) *Land Surveying*
 Coursework and Dissertation: The role of community participation in land management as part
 of settlement upgrade. Case study: Amatikwe
 (Dr C Fourie)

Bachelor of Science in Engineering

(Agricultural Engineering)

✦ **Ascough, Gregory William**
Butler, Andrew John Edward
Kedge, Caryn Julie

Marechal, Alain Laurent
Tweddle, Peter Brian

(Chemical Engineering)

Avanasigan, Natasha
Avidi, Vernon Alastair
Devnarain, Prathisha Baruth
Gopalan, Nassen
Govender, Moganie
Govinder, Uvantheren
John, Brindha Samantha
Jugree, Anil
Kader, Musthakeem
Karim, Abdul Muthaliep
King, Edgar Charles
Madunchand, Vikesh Ramesh
Mahomed Haniff, Ebrahim Raza
Mamashela, Malose Salamina

Mkhize, Sifiso
Mlambo, Ezra Mdelwa
Moodley, Kevan
Moodley, Paranjothi
Mooragan, Nigel
Munusamy, Lionel
Murugen, Lee-Ann Hilda
Naidoo, Kribun
Naidoo, Paramespri
Naidoo, Rolandra Dayanand
Naidoo, Yugandra
Pillay, Kleantha
Pillay, Komala
Pillay, Neelandhree

✦ indicates degree awarded *cum laude*

Pillay, Sivarajen Moonusamy
Ramkumar, Reshma
Rampersad, Nirvanna
Roopchand, Jaynash Hemraj
Roy, Ravindra Sebnath
Sewnarain, Reshan
Sibisi, Sibusiso Alfred
Singh, Nirdesh

Singh, Shashona
Tomlinson, Rion Charles
Tsotetsi, Bhampini Abram
Vayej, Shoaib Ahmed
Warren, Timothy Armstrong
Wolhuter, Ryan Glenn
Xolo, Siyavuŷa Nicholas

(Civil Engineering)

Bennett, David John
Bowers, Aiden James
Chambers, Gareth
de Comarmond, Louis Gerald Amaud
Gounden, Magasperan Maduray
Jangali, Shalen Prasnath
Laister, Guy
May, Bradley Igor Alexander

Montwedi, Esau Pheku
Ngcobo, Raphael Msawenkosi
Oliver, Jean-Marc Sebastien David
Olufsen, Jonathan Simon
Patel, Sahil Ramesh
Starmer, Jonathan Arthur
Surjoo, Nishal
+ Warren, Juliet Sheryl

(Electrical Engineering)

Araujo, Rogério José De Freitas
Benn, Lance Clayton
Bhoola, Ramesh
Bodasing, Sanesh Sher
Booyens, Neville
Budhai, Kevin Dewnath
Debipersad, Pramodh Chundurduth
Govender, Loganathan Krishna
Haridas, Leon
Haripersad, Vinor Anil
Huang, Feng-Wei
Joorna, Zarheer
Khumalo, Mpumelelo
Mahange, Matimba Mike
Michael, Marcus

Mlambo, Sibusiso Russel, BSc(UNIN)
Moodley, Luwendran
Moodley, Lyndenn John
Naicker, Jayson Shirinivasan
Padayachee, Dean
Peer, Mohamed Abdul Rasheed
Pillay, Yaseelan
Ramadhin, Shawn
Reddy, Ralph
Singh, Kabir
Sithole, Bongani
Vilane, Sibusiso Bhekisisa, BSc(UZ)
Warr, James Seymour
Zondi, Lucky Wiseman
Zulu, Sipho Absalom

(Electronic Engineering)

Anderson, Justin Leigh
Annamalai, Leeandran
Botha, Jacques Pieter
+ Brooks, Stuart Martin
Byers, Geoffrey James

Cawood, Marc Julian
Chetty, Leon
Docrat, Hamza
Eckford, Laurence Edward
Evans, Ryan Nicholas

+ indicates degree awarded *cum laude*

+ Fincham, Matthew Robert
 Folly, Deepak Dewdutt
 Gounden, Jonathan
 Hall, Bryn Craig
 Jacklin, Rowan Gwinnett
 Jeebodh, Preshon
 Khan, Muhammad Junaith
 Louw, Riaan Wilhelm
 Maken, Kamal Gopal
 Malherbe, Jeremy Mark
 McIntosh, Ian James
 Moodley, Marshnee
 Mulla, Mohammed Shiraz
 Munien, Vernon Subramoney
 Myhill, Jason Kit

Naidoo, Nersan Ranjan
 Nayagar, Vaugan
 Ndlovu, Patrick Musa
 Pillay, Kelwin Bryan
 Raw, Craig Kelman
 Sibisi, Mbusi
 Singh, Shravan
 Sookdeo, Vishad Premchand
 Spicer, Ryan David
 Thaver, Vernon Timothy
 van der Westhuizen, Natanje
 Weber, Dawn Ashleigh
 Whitehead, James Bruce
 Wiggill, Byron Robert

(Mechanical Engineering)

Archary, Laresin
 Barton, Mel Ashley
 Bhadar Dutt, Shaun
 Bhagirathi, Vishal Bunchiepasadh
 + Bonorchis, Dean
 Buthelezi, Sipiwe Griffiths
 Chater, Gavin Errol
 Chithiya, Prinesan
 Cooper, Nigel Leslie
 + Damm, Uwe
 Francis, Andrew Lingard
 Good, Jayden
 Govender, Deena
 Govender, Kamalassen Sambasiven
 Govender, Lavendran Munsamy
 Govender, Lushen
 Khan, Muhammad Bilal
 Lucht, Horst Wilhelm
 Maula, Taahir
 Mbatha, Mandlenkosi Vincent
 + McIntyre, Shane Gavin
 Mdunge, Oscar Zakhele
 Moodliar, Desigan Ramamurthi

Naicker, Surendhren Manivelu
 Naidoo, Rishendra
 Naidoo, Vishendra Poobalan
 Naiker, Soraya
 Nkabinde, Mlungisi Edington
 Panday, Shiven
 Papastylianos, John
 Patel, Prinal Vasantlal
 Raghoonandan, Sudasha
 Rameshur, Roshan
 Ramkissor, Manoj
 + Reuning, Jens Markus
 Reuning, Kai Matthias
 Shabalala, Sipho Brian
 Sibanyoni, Bongani Floyd
 Sookay, Nirvan Karam
 Sowki, Shikar
 Surendra, Navin
 Sysum, Geoffrey Roy
 Thomson, Ross
 ★ Touche du Poujol, Géraldine
 Woolnough, David Edward

★ indicates degree awarded *summa cum laude*

✦ indicates degree awarded *cum laude*

Bachelor of Science in Land Surveying

Barsdorf , Bruce Michael	Muchna , Warren Anthony
Briscoe , Craig Elliott-Drake	Munien , Rajan
Burwood , Wayne Shaun	Reid , Grant David
Dähn , Angela Margaret	Schofield , Ryan Richard
Dralle , Elton Edwin	van Jaarsveld , Adriaan Frederik
Hutchison , Grant Andrew Daniel	+ Venter , Johan

+ indicates degree awarded *cum laude*

Bachelor of Science in Quantity Surveying

Butler , Andrew John	Pillay , Arushka
Jumoorty , Fezal	Ross , Bruce John
Kewley , Ryan	Singh , Rohan
Maharaj , Pradhisthira	van Schalkwyk , Deidre
Mathura , Divashni	Weir , David Deighton
Nirghen , Randir Rajkumar	

Bachelor of Science in Construction Management

Chetty , Suresh	Papworth , Warren Barry
Eitelberg , Benjamin	Twine , Michael John
Hogg , Jody William	

Postgraduate Diploma in Engineering

Biggar , Malcolm Joseph, <i>BScEng</i>	Maddox , Brent Ryan, <i>BScEng</i>
Chetty , Rajan, <i>BScEng</i>	Maharaj , Vishal, <i>BScEng</i>
Chetty , Robin, <i>BTech(MLST)</i>	Manzana , Euclid Nkosinathi, <i>BScEng(UDW)</i>
Gessese , Aboneh, <i>BSc(AddisAbaba)</i>	Naidoo , Yagendra, <i>BTech(MLST)</i>
Govender , Dhanaseelan Anandan, <i>BTech(MLST)</i>	Pearce , Paul Baxter, <i>BScEng</i>
♦ Keyser , Justin, <i>BScEng</i>	Peters , Neville Gabriel, <i>BTech(MLST)</i>

♦ indicates diploma awarded *with distinction*

A video recording of the entire ceremony is available from the University's Audio-Visual Centre, Level 5, Shepstone Building, telephone 260-2637.

The University has appointed Studio Sydney to photograph each graduand/diplomate as they are being capped. The proofs of these photographs will be posted directly to the students, within 14 days of graduation. Note:- all enquiries regarding photographs should be directed to Studio Sydney, telephone 301-2169/305-1129.

A Brief History of the University of Natal

Natal University College - The forerunner of the University of Natal - opened its doors in Pietermaritzburg in 1910 with eight professors and 57 students, eight of whom were women. Lectures in Classics, English and Philosophy, Law, Modern Languages, Botany and Geology, Chemistry and Physics, Mathematics and Zoology were spread over various venues, including Maritzburg College, the Natal Museum building and at the City Hall.

It was not until August 1912 that Old Main Building - built on 40 acres of land donated by the Pietermaritzburg Corporation - was opened by the then Minister of Education, F.S. Malan and the core of the present-day Pietermaritzburg campus was established. The following year, Natal University College (NUC) ceased to be a state institution, becoming instead a state-aided body.

In 1923, NUC extended its tuition to Durban with university level courses in Commerce and Engineering at the Technical College, but it was not until 1928 that Durban agreed that NUC take over full responsibility for university classes in Durban, thereby establishing the characteristic dual nature of the University of Natal. A generous donation by T B Davis, whose son, Howard Davis had been killed during the battle of the Somme in World War I, facilitated the building of Howard College on the Berea which formed the core of a separate campus in Durban. Howard College was formally opened in 1931.

Largely through the efforts of Fabian Socialist Dr Mabel Palmer, separate classes for 19 "Non-European" teaching students at NUC were introduced in Durban in 1936. This number, reflecting an obvious need for training of this nature, grew to nearly 900 by 1960. However, like the University's Medical School, founded in 1951 for black students, classes still reflected the segregated nature of South Africa under apartheid. The government's Extension of University Act of 1959 limited new enrolments, other than those at Medical School, to whites and thwarted the University's aspirations to serve the educational needs of broader society. This act also restricted the autonomy achieved when NUC was granted full university status in 1949. It was not until 1983 when the University circumvented the government's racial admission "quotas" by an appeal to the High Court, that the University could fully resume its role of serving the educational needs of the broader community. Today, about 20 000 students, representing all sectors of South African society, are enrolled at the University of Natal.

In 1953, the administrative control for the University was shifted from Pietermaritzburg to Durban. In response to mounting travelling costs, the two centres were academically separated in 1973, with each centre having parallel faculties of Law, Humanities, Commerce, Science, and Social Science. Recent restructuring has meant the merging of some faculties across both campuses, with Faculties of Engineering, and Law being shared by both campuses. Unique to Durban are the Faculties of Community and Development Disciplines, Management Studies, Science and Medicine. Unique to Pietermaritzburg is the Science and Agriculture Faculty. There are separate Faculties of Human Sciences on each campus.

The University of Natal is fortunate to boast among its past vice-chancellors and principals some exceptional leaders. Its first principal, John Bews (1930-38), was a world-renowned botanist while Dr E G Malherbe (1945-65) was known internationally as an educationalist. In 1993, the University of Natal was the first South African University to appoint a woman as its principal. Brenda Gourley is the present incumbent. Chancellors have also been distinguished figures, not least the present Chancellor, Judge Pius Langa, and the recently retired Archbishop Denis Hurley. Students include Alan Paton, Steve Biko and Alec Erwin. Honorary graduates include Nelson Mandela, Roy Campbell and Abdullah Ebrahim.

The University of Natal is committed to service through excellence in teaching and research and is opposed to discrimination on the grounds of race, colour, nationality, religion or gender. It is known as a centre for excellence in Africa, is one of South Africa's top research institutions, and has links with almost 260 international institutions. Alive to the demands of a rapidly changing global environment, the University has embarked on a thorough reform of curricula and university structures and is currently a leader in multi-disciplinary studies and is engaged in significant HIV/Aids research. In recognition of its role in society, the University of Natal is also committed to greater emphasis on community-based education and service learning.

National Anthem

Nkosi sikelel' iAfrika
Maluphakanyisw' uphondo lwayo
Yizwa imithandazo yethu
Nkosi sikelela
Thina lusapholwayo.

Morena boloka
Setjhaba saheso
Ofedise dintwa lematshwenyeho.

O se boloke, O se boloke
Setjhaba saheso
Setjhaba sa, South Afrika,
South Afrika.

Uit die blou van onse hemel
Uit die diepte van ons see
Oor ons ewige gebergtes
Waar die kranse antwoord gee
Sounds the call to come together
And united we shall stand
Let us live and strive for freedom
In South Africa our land.

Gaudeamus Igitur

Gaudeamus igitur, juvenes dum sumus;
Gaudeamus igitur, juvenes dum sumus;
Post jucundam juventutem,
post molestem senectutem,
Nos habebit humus, nos habebit humus.

Ubi sunt qui ante nos in mundo fuere?
Ubi sunt qui ante nos in mundo fuere?
Vadite ad superos, transite ad inferos,
Ubi jam fuere, ubi jam fuere.

Vita nostra brevis est, brevi finietur;
Vita nostra brevis est, brevi finietur;
Venit mors velociter, rapit nos atrociter,
Nemini parcetur, nemini parcetur.

Vivat Academia, vivant Professores,
Vivat Academia, vivant Professores,
Vivat membrum quodlibet,
vivant membra quaelibet,
Semper sint in flore, semper sint in flore.

