



Stellenbosch

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UNIVERSITEIT

forward together
sonke siya phambili
saam vorentoe

STELLENBOSCH UNIVERSITY: ENGINEERING FACULTY

Stellenbosch Engineering – Industry Showcase

Hilton Hotel, Sandton

26 May 2023

OUR VISION

Stellenbosch University will be Africa's leading research-intensive university, globally recognised as excellent, inclusive and innovative, where we advance knowledge in service of society.

OUR MISSION

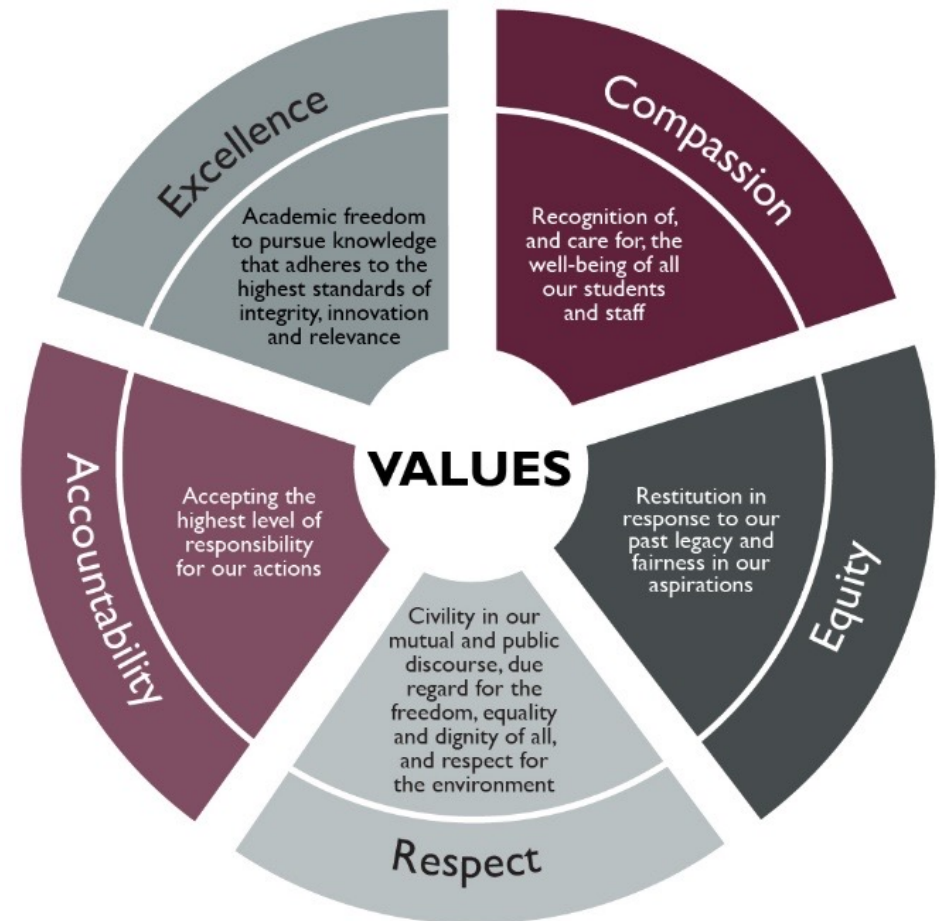
Stellenbosch University is a research-intensive university, where we attract outstanding students, employ talented staff and provide a world-class environment; a place connected to the world, while enriching and transforming local, continental and global communities.



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Faculties and Schools

- Faculties

- Arts and Social Sciences
- Law
- Education
- Theology
- Economic and Management Sciences
- Natural Sciences
- Engineering
- Agri-Sciences
- Medicine and Health Sciences
- Military Science

- Schools (across faculties)

- School for Data Science and Computational Thinking
- School for Climate Studies



SU IN NUMBERS



32 225

undergraduate, occasional
and postgraduate students

9 234

qualifications awarded

302

doctoral degrees awarded



10

Faculties



2 382 and 1 023

academic and support service staff



251–300th

position on Times Higher Education
World University Rankings (2021)



456

position in
QS Global World Rankings 2021

RESEARCH FOR IMPACT

Our research agenda is to optimise the scientific, economic, social, scholarly and cultural impact of our research. Our focus is on interdisciplinary research that benefits society on a national, continental and global scale.

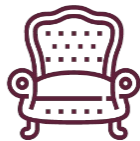
RESEARCH OUTPUTS

According to official figures of the Department of Higher Education (DHET), Stellenbosch University is one of the three most research-intensive universities per capita in the country.



6

Centres of
Excellence



51

Research
Chairs



486

NRF-rated
Scientists



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OUR INTERNATIONAL PARTNERSHIPS AND NETWORKS

The University has more than
250 university and research institute
partners in over **50** countries

Priority partners

- Ghent University, BELGIUM
- KU Leuven, BELGIUM
- University of Helsinki, FINLAND
- University of Hamburg, GERMANY
- Leipzig University, GERMANY
- Humboldt University of Berlin, GERMANY
- TU Dresden, GERMANY
- University of Stuttgart, GERMANY
- University of Groningen, NETHERLANDS
- University of Ljubljana, SLOVENIA
- Lund University, SWEDEN
- Coventry University, UK
- University of Bath, UK
- North Carolina State University, USA

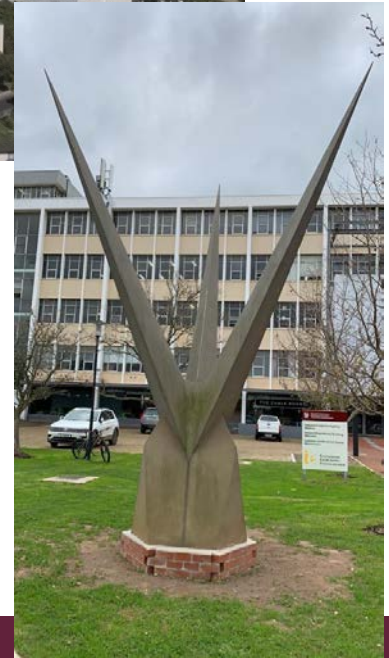


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Some History of the Faculty of Engineering

- Established in 1944
- Will be 80 years old in 2024
- First Afrikaans Engineering Faculty in South Africa, now multilingual
- Started with Civil, Electrotechnical and Mechanical Engineering
- Proven track record for producing excellent undergraduate and postgraduates students
- Outstanding research record in co-operation with industry



- Five Academic Departments
 - Mechanical & Mechatronic
 - Electrical & Electronic
 - Civil
 - Industrial
 - Chemical
- Institutes/Centres
 - Centre for Renewable and Sustainable Energy Studies
 - Institute for Biomedical Engineering

- Programmes offered

- BEng in Mechanical / Mechatronic / Industrial / Chemical / Civil / Electrical & Electronic (with options in Informatics and Data Eng)
 - 4-year full time academic study
 - Recognised internationally under Washington Accord
- MEng
 - Same disciplines as BEng
+ Engineering Management + Biomedical Engineering
 - Research option: 2 year thesis research
 - Structured option: 120 credits coursework + 60 credits research project
- PhD



Engineering Council of South Africa

Washington Accord



- Academic Staff
 - 158 academic staff members, of which
 - 128 have PhDs, 81%
 - 66 are registered Professional Engineers, 42%
- Support Staff
 - 165 support staff of which
 - 77 Administrative and Management
 - 19 Specialists
 - 47 Technical Staff
 - 22 Service Staff

Engineering Faculty



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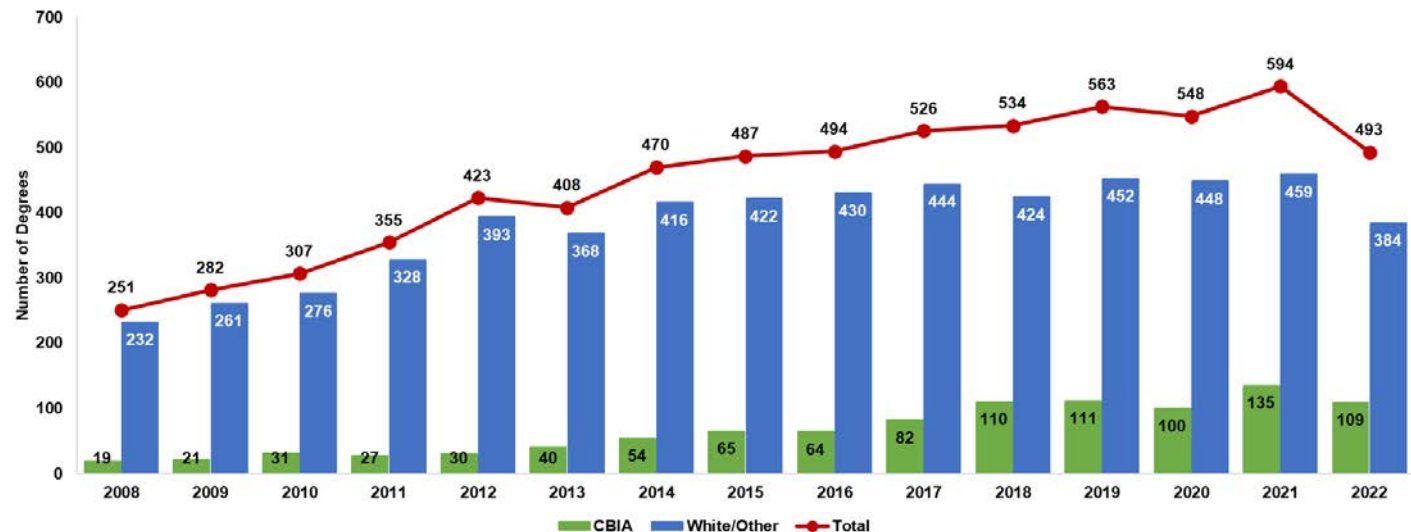
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- Some Numbers

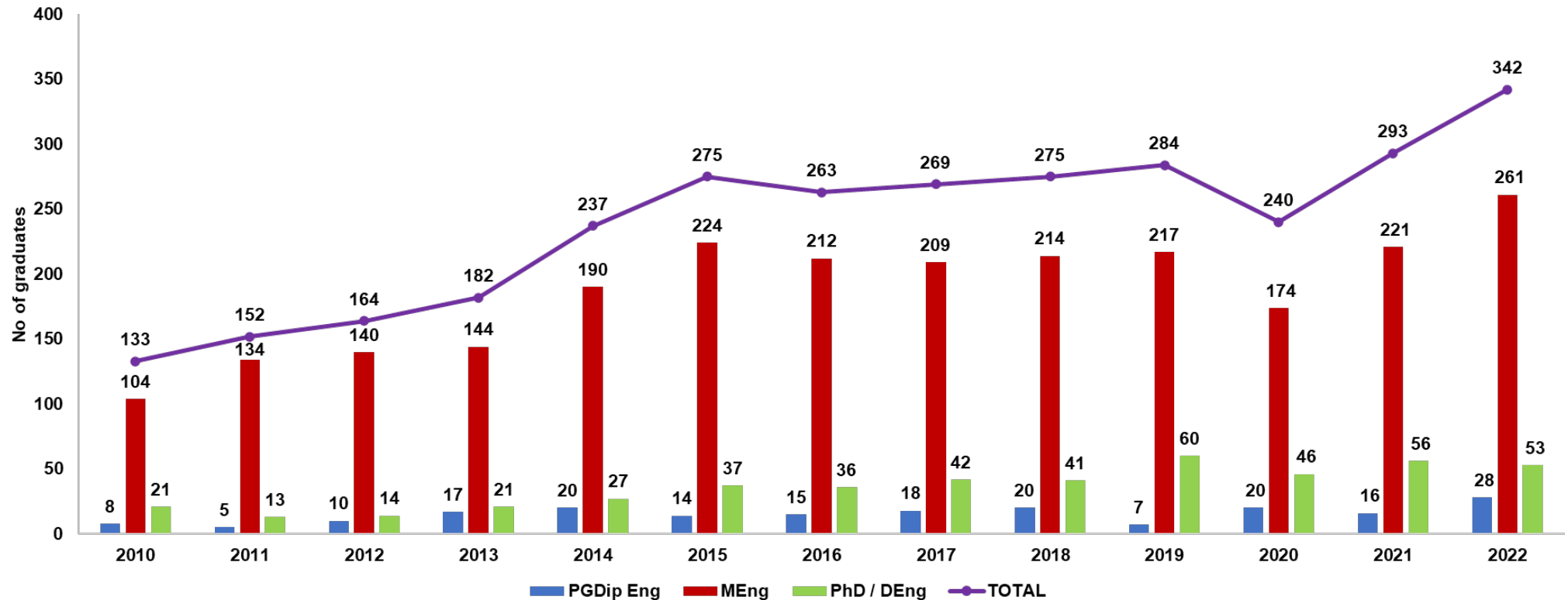
- 3 000 Undergraduate students
- 1 100 Postgraduate students
- 2022 Graduates (Dec '22 & Apr '23): 493 BEng, 261 Master's and 53 PhDs

- Typical intake of about 850 first years

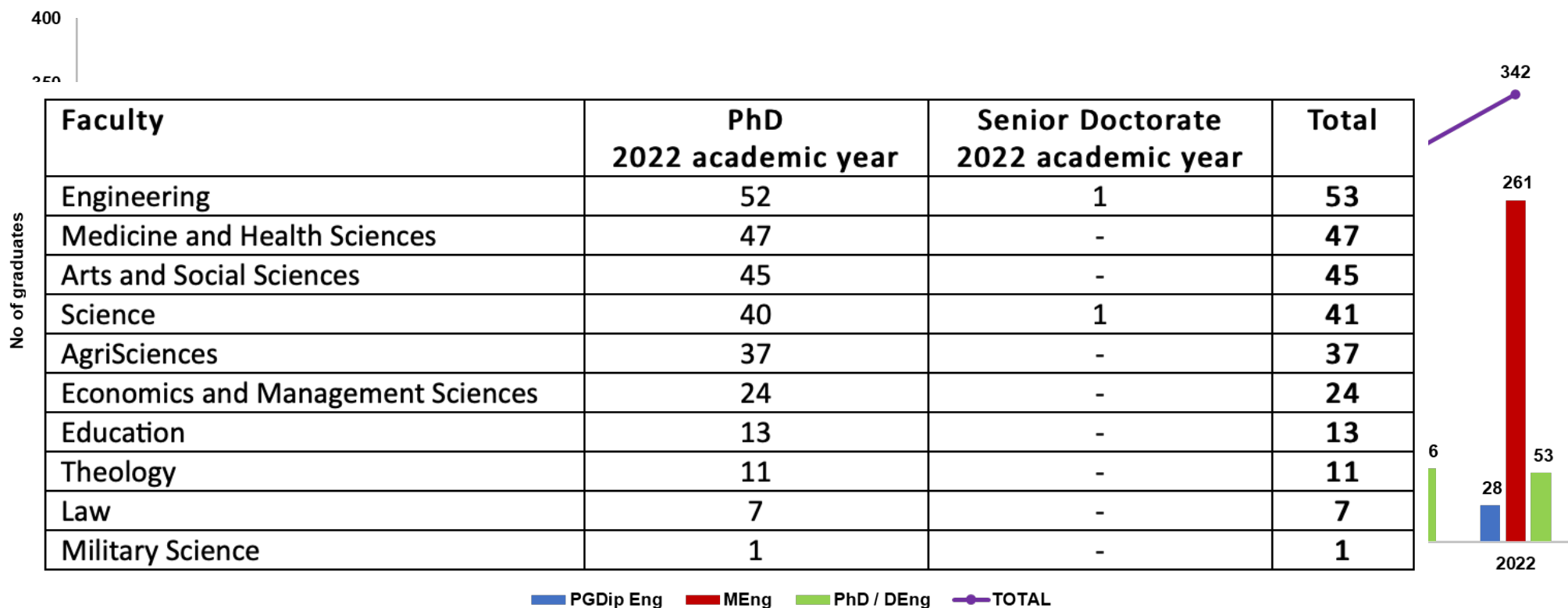
- UG success rate of 72%
(graduate after 4-6 years)



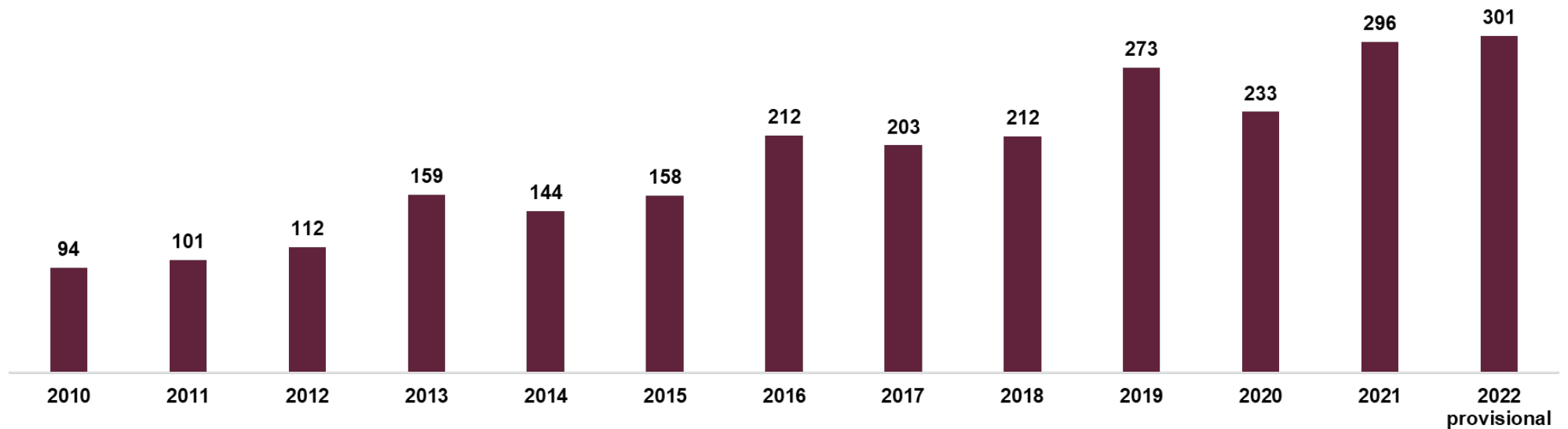
Postgraduate Qualifications Awarded in December 2022 and April 2023



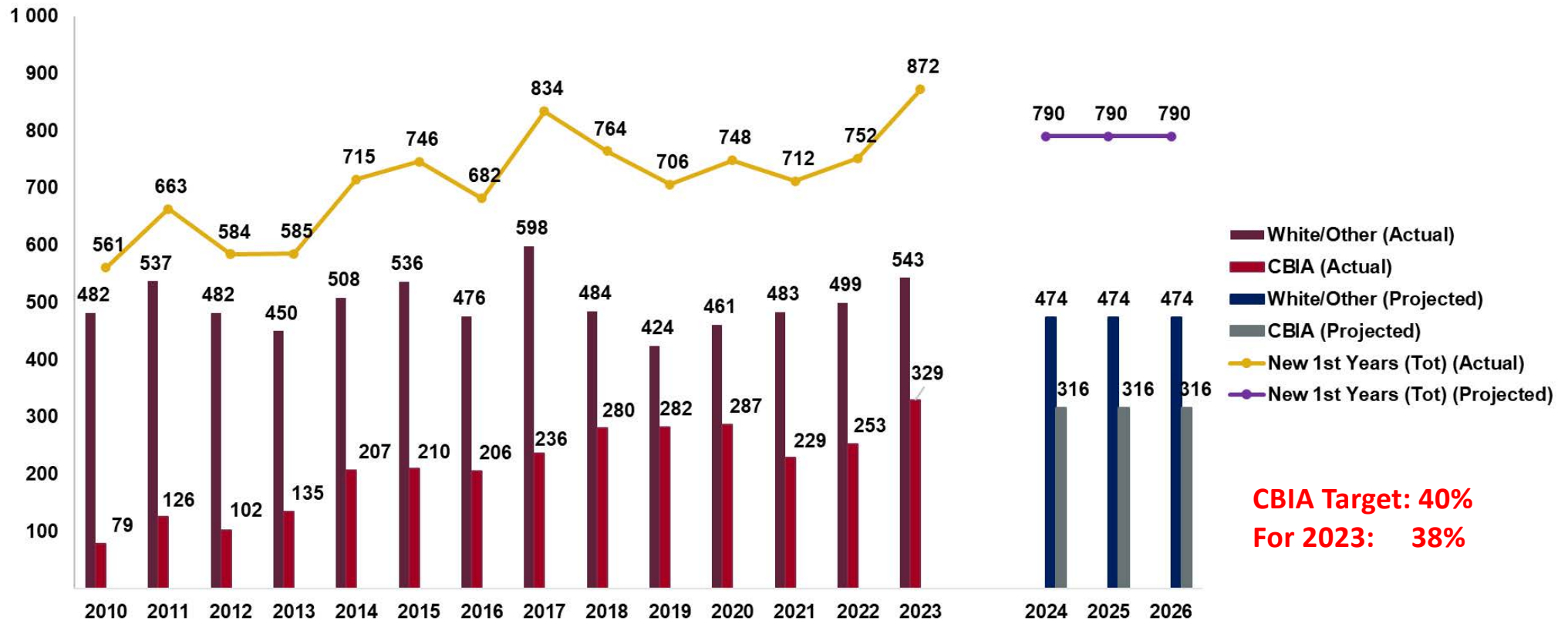
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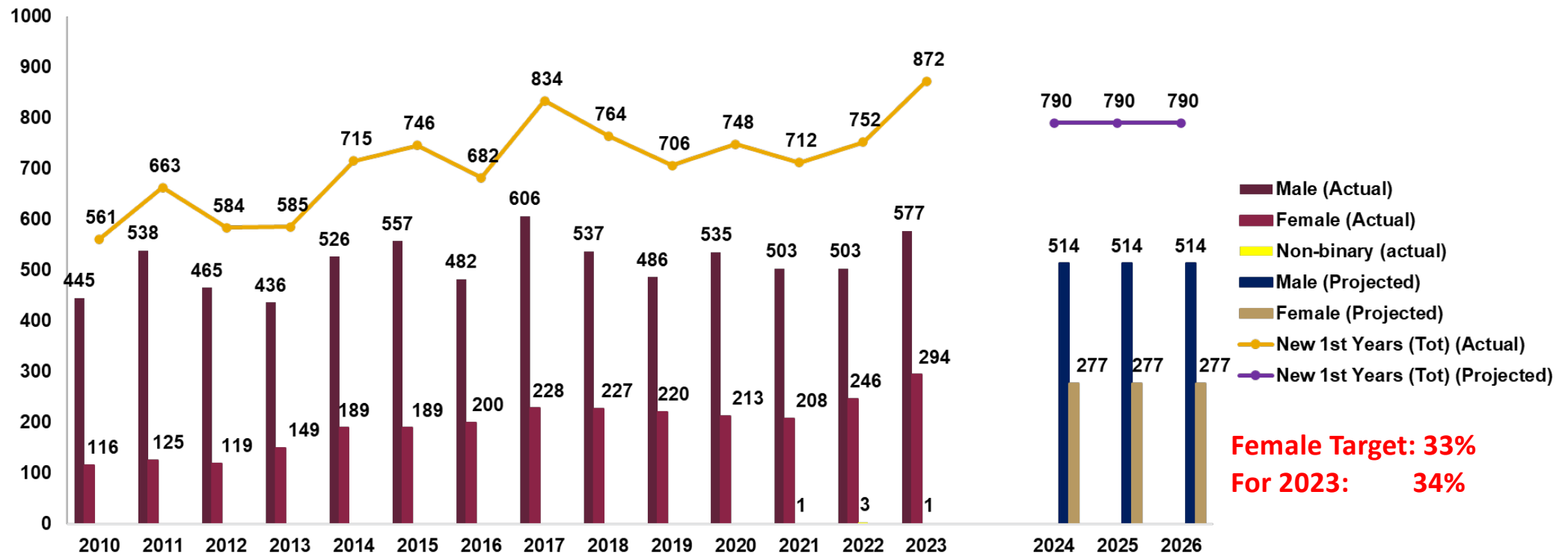
Faculty of Engineering Publication Units Delivered



BEng New First Year Growth and Enrolment Planning

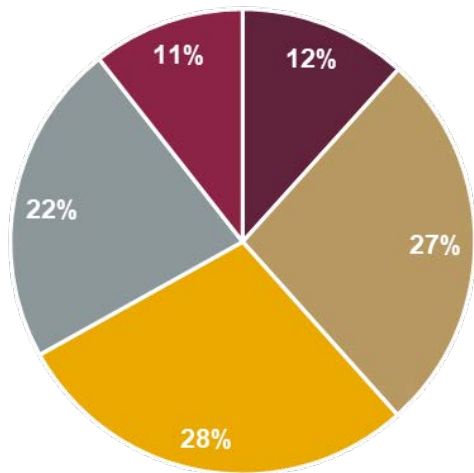


BEng New First Year Growth and Enrolment Planning

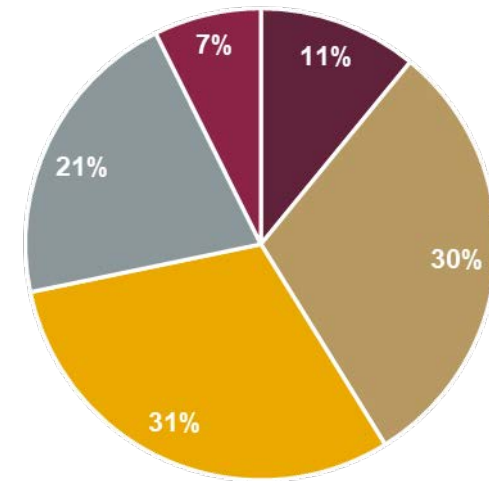


Matric Averages: 1st year (4yr) 2022 cohort vs 2023 cohort

2022



2023



■ <75% ■ 75-79% ■ 80-84% ■ 85-89% ■ >=90% ■ <75% ■ 75-79% ■ 80-84% ■ 85-89% ■ >=90%

Name Change of the Department of Process Engineering

Department of Process Engineering
Departement Prosesingenieurswese

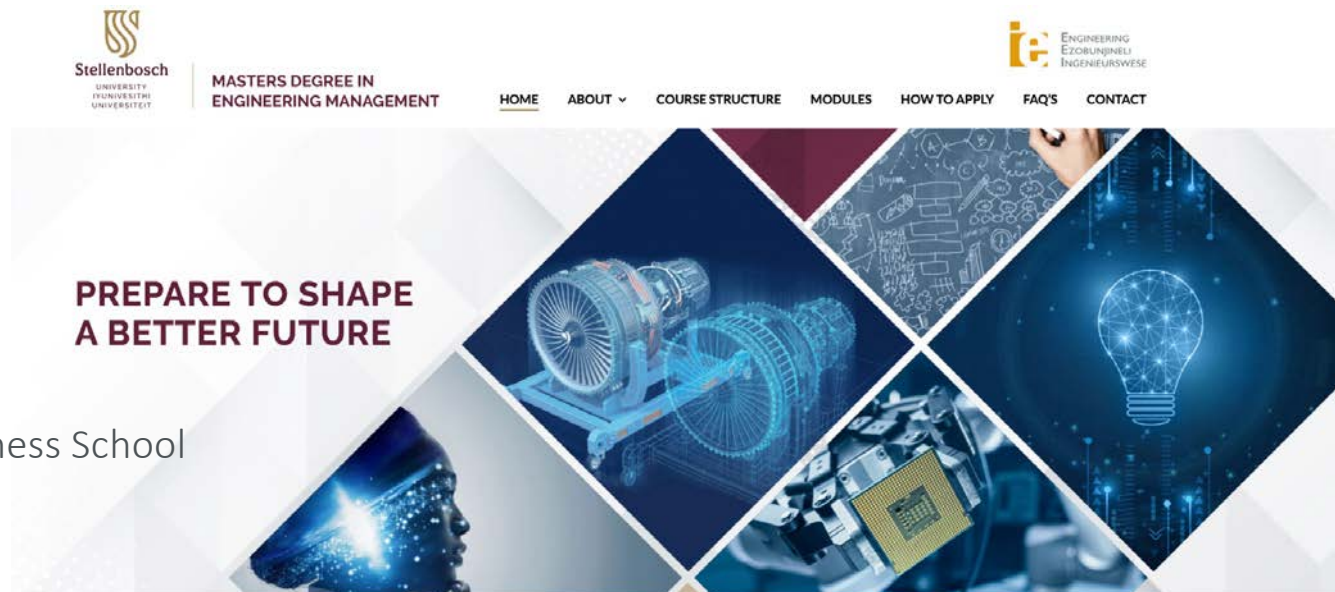


Department of Chemical Engineering
Departement Chemiese Ingenieurswese



Masters in Engineering Management

- Hybrid, online Masters programme in Engineering Management.
- New programme with 82 first-time enrolments in 2022, 104 in 2023.
- (Business plan required 35 in 2022 and 50 in 2023.)
- Many students based outside SA.
- Strong team:
 - Prof Calie Pistorius
 - Prof Taryn Bond-Barnard
 - Prof Sara Grobelaar
 - Prof Antonie de Klerk
 - Dr Willem Barnard
 - Prof Imke de Kok
- Working closely with the Stellenbosch Business School
- <https://mem.sun.ac.za>



NRF A-Rated Scientists



- Prof Andries Engelbrecht, A-rated Computer Scientist, joint appointment between the Department of Industrial Engineering and Computer Science (Faculty of Science).



- Prof Josua Meyer, A-rated Mechanical Engineer, appointed in the Department of Mechanical and Mechatronics specialising in Heat Transfer, Thermodynamics and Fluid Mechanics.

New NRF/SARChI Chairs



Prof Prathieka Naidoo: SASOL/NRF Chair in Chair in Green Hydrogen
Integration and Transition

Tier 1 Chair, R 2.8m/annum



Prof Bernard Bekker: NRF Chair in Power System Simulation

Tier 2 Chair, R 1,4m/annum



Stellenbosch University - Institute for Biomedical Engineering

What is the IBE?

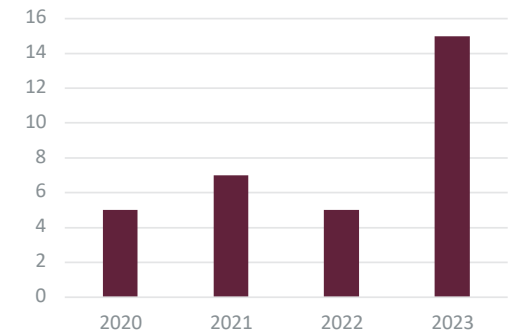
- Multidisciplinary centre focus on Biomedical Engineering
- Collaborative research
- Across at least three faculties
- Multidisciplinary degree offers
 - MEngSc (Biomedical Engineering) – **Structured**
 - MEngSc (Biomedical Engineering) – **Research**
 - PhD (Biomedical Engineering)

Research degrees are co-supervised between faculties

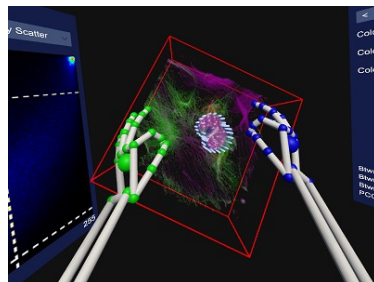


Pressure field inside aorta gen. with CFD.

New MEngSc (All) Students



Biosensors



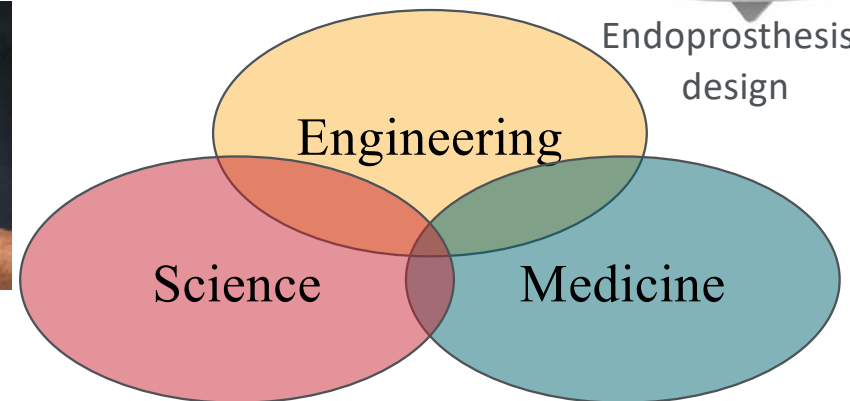
Virtual Reality Cell Analysis Tool



3D Printed Surgical Aids



Endoprosthesis design



BMW IT Hub Collaboration

- BMW IT Hub – strategic software solutions development for BMW AG
- 2 Requirements:
 - Talent pipeline
 - New innovative solutions for operational challenges
- Initiated 2021 – 5-year umbrella agreement. Full Cost with IP transfer.
- Actively involved partner, where students are integrated in operational teams – also in Germany.
- 2022 Intake has employment offers from BMW.



| Description | 2021 | 2022 | 2023 | 2024 |
|------------------|------|--------------------------------|-------------------------------------|----------------|
| 2022 Intake | | 10 Masters Students | | PhD Upgrade? → |
| 2023 Intake | | | 8 Masters Students 1 PhD Student | |
| Financial impact | | R3.7M BMW Collaboration Lab | R7.5M | |

Engineering Campus Renewal



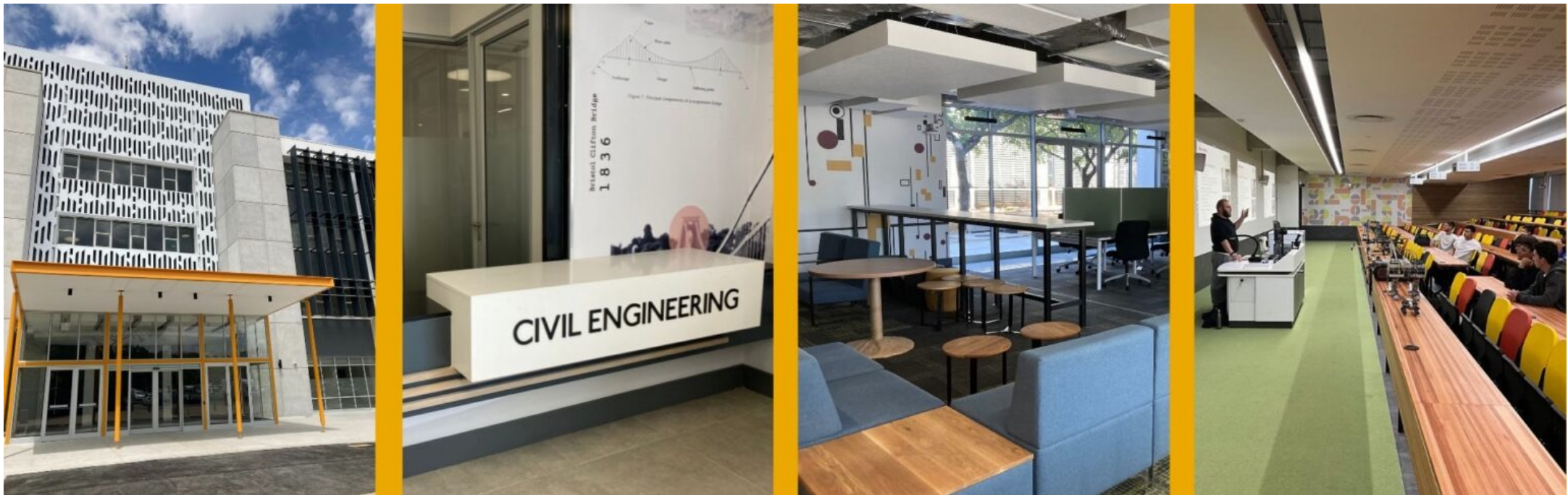
- LARGE Project with a budget close to one billion Rand

Completed Projects:

- Industrial Engineering July 2018
- New Pavement Laboratory December 2019
- Mechanical & Mechatronic Engineering August 2019
- Engineering Annex May 2022
- New E&E Mechatronic Laboratory August 2022
- Civil Engineering January 2023
- Then E&E (July '24), General Engineering Bldg (July '25) and Process Eng(Oct '26)

Civil Engineering Building Completed

Civil Engineering building completed. Includes offices of academic and support staff and a number of large lecture halls.





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Well resourced Faculty with excellent staff and students dedicated to contribute toward the ***Development of our Economy*** and ***Improving the Quality of Life*** of all South Africa's citizens.

