CENTRAL UNIVERSITY OF TECHNOLOGY, FREE STATE

STRATEGIC PLAN 2021-2025

15 DECEMBER 2020

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LIST OF ABBREVIATIONS AND ACRONYMS

4IR	Fourth Industrial Revolution
CILT	Centre for Innovation in Learning and Teaching
CUT	Central University of Technology, Free State
DHET	Department of Higher Education and Training
ECP	Extended Curriculum Programme
FEBIT	Faculty of Engineering, Built Environment and Information Technology
FTE	Full-Time equivalent
FU	First-time entering undergraduate
HEDA	Higher Education Data Analyzer
HEMIS	Higher Education Management Information System
HEQSF	Higher Education Qualifications Sub-Framework
IPQE	Institutional Planning and Quality Enhancement
LMS	Learning Management System
NDP	National Development Plan
NPC	National Planning Commission
NRF	National Research Foundation
NSFAS	National Student Financial Aid Scheme
PDS	Peer data sharing
PG	Postgraduate
PGCE	Postgraduate Certificate in Education
SADC	Southern African Development Community
SET	Science, Engineering, Technology
STEM	Science, Technology, Engineering, Mathematics
TVET	Technical and Vocational Education and Training
UCDP	University Capacity Development Plan
UG	Undergraduate
UNISA	University of South Africa
UoT	University of Technology

DEFINITION OF KEY CONCEPTS AND TERMS

Vision statement	A concise statement of the institution's aspiration for the future. *Example: by 2030, CUT will be a leading African UoT, shaping the future through innovation.*
Strategic goals	What the institution seeks to achieve, as long-term, broad outcomes. *Example: to develop a strong culture of research and innovation.*
Strategic objectives	Strategic objectives are more refined and specific actions that the institution plans to implement in order to realise its strategic goals. *Example: increase the research publication units to 227 by 2025.*
Key performance indicators	Indicators are measures or metrics, often expressed as a number, rate, ratio or percentage, that are used to assess the performance of the institution against the objectives that have been set. Not all indicators have to be reduced to quantifiable measures. Organisations can also identify processes and qualitative indicators (e.g. raising awareness), which can be verified through observation methods and sample surveys. *Example: research publication unit projections in the Student Enrolment Plan.*
Targets	Targets are numeric measures of a goal or objective that are expected to be attained at a particular point or within a set period of time. *Example: number of projected research publication units for each year of the planning period.*
Inputs	The resources or enablers (people, finance, equipment, time) that are required in order to contribute to the delivery of outputs. *Example: support for researchers to write conference papers and publications to increase research outputs.*
Outputs	The goods, services and processes that are a product of the activities and interventions of the programme; i.e. *"what the intervention produces or delivers"*. *Example: research publications.*

FOREWORD BY THE CHAIRPERSON OF COUNCIL

The approval of CUT's Strategic Plan 2021-2025 is an important milestone in the university's journey towards the realisation of its Vision 2030. The Strategic Plan sets out goals and objectives that will move the university closer to becoming, by 2030, *a leading African University of Technology, shaping the future through innovation*.

This is the first of two strategic plans that CUT will develop between now and 2030. The plan is the result of extensive consultation with stakeholders, during a difficult year for the university.

All public higher education institutions in South Africa are required to produce a strategic plan and update it every five years. The plan must set out the institution's vision, mission, policy, priorities and project plans, and must be approved by its Council.

The Strategic Plan becomes the basis for the annual performance plans which each university must submit to the Department of Higher Education and Training. The university's success in meeting its strategic goals and objectives is reported on twice a year and is subject to an auditing process.

The CUT Council has approved the Strategic Plan 2021-2025, and wishes the university all success in meeting its goals and moving closer to its vision for the future.

Ms N Mokose
Chairperson of Council

09 December 2020

MESSAGE FROM THE ACTING VICE-CHANCELLOR & PRINCIPAL

This Strategic Plan 2021-2025 is the first of two such plans that CUT will develop over the period up to 2030, to give effect to the aspiration and goals of the university's Vision 2030.

The plan was drawn up during the extraordinary circumstances of the COVID-19 pandemic and the lockdown, which has had profound effects on the national economy, education in all its forms, and the social interactions of ordinary citizens.

The first few years of the planning period 2021-2025 will be dominated by efforts to recover from these effects. However, the aim of the university cannot be to return to the *status ante quo.* There will be a return to normality, but it will be a "new normal".

Two major strategic themes of CUT will be digital transformation and institutional sustainability. The university was already considering its future trajectory in light of the Fourth Industrial Revolution before the arrival of COVID-19. The virus has accelerated the transition to technology-infused modes of teaching and learning, including the offering of online programmes.

Countries around the world see the need for economic recovery as an opportunity to fast-track greener energy production and generally more eco-friendly economies. The same holds true for the university, within the context of the United Nations' Sustainable Development Goals, the African Union's Agenda 2063, and South Africa's own National Development Plan.

The pandemic has highlighted the deep and persistent inequalities in South African society and exacerbated the problems of unemployment and poverty. Offering effective blended-mode or online tuition to students in future will require CUT to overcome the barriers to access that these social evils cause. The university must strive for access with success for all our students. It must produce work-ready and entrepreneurial graduates with the attributes to succeed in a fast-changing and unpredictable world.

This Strategic Plan provides specific institutional targets and measurable performance indicators that will guide the university for the next five years towards its vision for 2030. The plan is the result of extensive consultation with university stakeholders, and I thank all those who have engaged with the process and contributed to the outcome.

The main purpose of a Strategic Plan is to facilitate alignment. The measure of its success will be the extent to which all university role-players work together to realise the strategic goals. I am confident that our colleagues will not be found wanting.

Prof. DP Ngidi
Acting Vice-Chancellor & Principal

09 December 2020

OFFICIAL SIGN-OFF

It is hereby certified that this Strategic Plan 2021-2025:

- was developed by the Management of the Central University of Technology, Free State under the guidance of the University Council;
- takes into account all the relevant policies, legislation and other mandates for which CUT is responsible, and accurately reflects the strategic outcome-oriented goals and objectives which the university will endeavour to achieve over the period 2021 to 2025.

Prof. A Strydom
Acting Deputy Vice-Chancellor: Teaching & Learning
Head Official responsible for Planning

Prof. DP Ngidi
Acting Vice-Chancellor & Principal
Accounting Officer

Approved by:

Ms N Mokose
Chairperson of Council
On behalf of the CUT Council

1. INTRODUCTION

This five-year Strategic Plan of the Central University of Technology, Free State (CUT) sets strategic goals for the university for the period 2021-2025. As such, it is one among a number of plans which are intended to guide the university and direct its energies and resources towards realising its vision for CUT by 2030.

The vision statement says:

> "*By 2030, Central University of Technology, Free State will be a leading African University of Technology, shaping the future through innovation.*"
> (CUT 2020a:3)

This Strategic Plan is the first of two five-year plans to be developed during the decade between now and 2030. The plan is based upon the input from stakeholder engagements on Vision 2030, beginning with an Extended Management and Stakeholder Lekgotla held in November 2019. It also draws upon the CUT Situational Analysis which was developed as a resource for the planning process. The university's main divisions have contributed directly to the planned initiatives that are intended to realise the strategic goals.

For most of the period in which the Strategic Plan was being developed, from late March until September 2020, the university was under some level of lockdown imposed by the Government to curb the spread of the coronavirus, COVID-19. The virus, and the battle to contain it, has had a profound effect on all universities, colleges and schools in the country.

The university had already been grappling with the questions of what to teach and how to teach it in the light of the impending Fourth Industrial Revolution (4IR). This latest industrial revolution is expected to make many existing jobs redundant, but will create new opportunities.

The coincidence of these two world-changing forces, COVID-19 and 4IR, brought to prominence the two major strategic themes that CUT will be pursuing in the period 2021-2025: digital transformation and institutional sustainability. The university's plans in regard to these themes are set out in section 3 below, titled "The New Normal".

The period of this plan, 2021-2025, overlaps the university's Enrolment and Efficiency Targets for 2020-2025 (referred to below as the Student Enrolment Plan), submitted to the Department of Higher Education and Training in April 2019 (CUT 2019a).

The Student Enrolment Plan sets specific targets, at the institutional level, for each year of the planning period. Once the targets are accepted by the Minister of Higher Education and Training, they constitute the university's statement of intent. The Minister, Dr BE Nzimande, approved the enrolment and output targets in a letter to the Chairperson of CUT's Council, Mr CM Phehlukwayo, on 29 January 2020 (included as **Appendix 1**). Council's confirmation of the targets was sent to the Minister in April 2020.

In his letter, the Minister said:

> "I believe that this cycle of planning is an important step in laying the foundation for our post-school vision for 2030. The creation of a single, coordinated education and training system that is highly articulated, integrated, differentiated and responsive is essential in producing the professionals required to sustain the economic development of our country" (DHET 2020a:1).

The Student Enrolment Plan includes a wide range of targets, including:

- Student headcount enrolments, contact and distance mode
- Enrolments by major field of study
- Enrolments by group and gender
- Full-time equivalent (FTE) student enrolments
- Degree credit success rates (pass rates)
- Graduates
- Permanent staff headcounts
- Full-time equivalent staff
- Highest qualification of instruction/research staff (academic staff)
- Research outputs
- Ratio of FTE students to FTE academic staff
- International students
- Enrolments and graduates in scarce skills areas
- Enrolments in foundation programmes

In sections 4 to 7 below, CUT's enrolment and efficiency targets are incorporated as targets of this Strategic Plan 2021-2025. The student-related targets are reflected first, enrolments in section 4 and success in section 5; and then staff targets in section 6. Summary tables, with some history and projections for 2021-2025 are provided in section 7.

In section 8, strategic initiatives related to the achievement of CUT's strategic goals are reflected.

In the section that follows, a brief context for this Strategic Plan is provided. It includes the legislative mandate under which the plan is produced, key elements of the university's Vision 2030 document, and an overview of the CUT Situational Analysis that was developed as a resource for the university's planning process.

2. CUT CONTEXT

2.1 LEGISLATIVE MANDATE

As a university of technology in South Africa, CUT is bound by the Higher Education Act (Act No. 101 of 1997, as amended). In terms of regulations published under the Act by the Minister of Higher Education and Training in June 2014, each public higher education institution in South Africa must prepare a strategic plan.

The strategic plan should set out "the institution's vision, mission, policy, priorities and project plans for at least a five year period", approved by its Council. The plan must have "strategic goals and objectives for the institution, focusing on each of its main service delivery areas supported by the financial plan". Furthermore, it must lay the foundation for the university's Annual Performance Plan (DHET 2014:6-7).

This Strategic Plan 2021-2025 is produced in accordance with the regulations. For the university, however, the plan is more than a matter of compliance. CUT's Strategic Plan, based on its Vision 2030, is the outcome of an extensive process of consultation with stakeholders. It captures the wisdom of the stakeholders in a document that is intended to guide the efforts of the university for the next five years, aligning the energies of various role-players in one consistent direction.

2.2 VISION 2030

As mentioned earlier, the vision of CUT is to become, by 2030, a leading African University of Technology, shaping the future through innovation (CUT 2020a:3).

The vision statement is supported by seven strategic goals arising from the stakeholder engagements and the university's mission statement, values, motto, and graduate attributes. These are:

Strategic goals:

- To create a harmonious community conducive to teaching and learning.
- To produce work-ready, entrepreneurial and holistic graduates.
- To develop a strong culture of research and innovation.
- To attract, develop and retain staff as the university's most important asset.
- To build strategic partnerships that contribute to the achievement of the university's goals.
- To ensure institutional sustainability, expand streams of income, and enhance the CUT brand.
- To promote good governance, human rights and social justice.

Mission statement:

In aspiring to fulfil its vision, CUT as a university of technology:

- delivers high-quality, appropriate Science, Technology, Engineering and Mathematics (STEM) academic programmes, as well as those in Management Sciences, Education and Humanities, supported by applied research;
- engages with the community for mutually beneficial development;
- promotes access with success in attracting potentially successful students, and supporting them to become employable and job-creating graduates;

- attracts and retains high-quality students and expert staff, and supports their development and well-being; and
- forges strategic partnerships that are mutually beneficial.

Core values:

The core values of the university are:

- Ubuntu
- Integrity
- Diversity
- Innovation
- Excellence

The university's understanding of the core values is set out in **Appendix 2**.

Motto:

The motto of CUT is *Thinking beyond*.

Symbol:

The institution symbol of CUT is an amalgam of modernit and tradition.

- The molecule system symbolises technology, innovation, the future and beyond.
- The molecule system has the freedom to choose its own path, create new paradigms, anticipate the future, and challenge the status qou. It expresses the energy of creation creation
- The shield is our sense of stability, credibility and sustainability. It represents our strength as one.
- **RED** is the colour of courage, the energy with which we grasp every task or challenge. It signifies the region where we were born.
- **YELLOW** gives us light to see the future and the joy we feel as we embrace it.
- **BLUE** brings life to all that we imagine; calm and clarity to all that we hear; vision in all that we strive to do and sincerity in all that we believe.

Graduate attributes:

CUT has identified 10 graduates attributes that it strives to inculcate in its graduates. Realising the attributes require the alignment of activities in teaching and learning, curriculum renewal, assessment tasks and outcomes, as well as extra-curricular and sporting activities.

The attributes are:

- Sustainable development
- Community engagement
- Entrepreneurship
- Innovation and problem solving
- Technological literacy
- Numeracy

- Communication
- Technical and conceptual competence
- Teamwork
- Citizenship and global leadership
  (CUT 2010a:10)

A summary of what is expected of graduates under each attribute is set out in **Appendix 3**. A proposal to expand the outcomes of the attribute *Citizenship and Global Leadership* was approved by Senate at its meeting of 31 August 2020, to include opposition to issues of racism, gender-based violence, and the abuse of women and children.
(CUT 2020a:3-5)

An outline of the Executive and Senior Management reporting lines of the university is provided in an organogram, in **Appendix 4**.

2.3 CUT SITUATIONAL ANALYSIS

A situational analysis of CUT was commissioned as part of the university's Vision 2030 planning process. The analysis included the socio-economic location of CUT; the university's location within the Education sector; the university of the future; the academic profile of CUT; CUT in relation to other universities of technology; a review of the university's Strategic Plan 2016-2020; and transformation. A summary of the analysis is provided below.

CUT is a relatively young university in the South African context. It started out as the Technikon Free State in 1981, and became a University of Technology in 2004, incorporating the Welkom campus of Vista University. It is one of the smaller universities, with an enrolment of 21 239 students in 2019, and it is the second smallest of the six UoTs.

The Free State province is centrally located within South Africa. It is the third largest province, constituting 10,6% of the land mass of the country. Its population of 2,89 million people represents 4,9% of the total population of 58,78 million. This makes it the province with the second smallest share of the population, after the Northern Cape. In the period 2006 to 2016, the Free State was one of four provinces to show a net loss of population through out-migration and in-migration.

The economy of the Free State is growing at a rate far below the target of 5,4%, which the National Development Plan considers necessary to drastically reduce poverty and unemployment in the province. The average annual growth rate between 2011 and 2017 was 1,6%, and the economy shrank by 1,4% in 2018. Any chance of growth in 2020 has been destroyed by the COVID-19 pandemic and the national lockdown.

The Free State's contribution to the gross domestic product in 2017 was 5,0%. The primary industries of agriculture and mining are the main sectors of the Free State economy, with mining the major employer. The tertiary industries (trade, transport, finance and community services) grew at a rate of 1,8% a year on average between 2011 and 2017, ahead of the primary industries at 1,7% and secondary industries (manufacturing, electricity and construction) at 0,8% a year.

About six out of 10 people in the province are of working age, between the ages of 15 and 59. The unemployment rate at the time of the 2011 census was 32,6%. The Free State is the province with the lowest population growth rate between 2011 and 2016 of 0,7%, compared with a national average of 1,6%. It is the province with the lowest life expectancy at birth.

The most widely spoken language in the Free State is Sesotho (64,2% in 2011), followed by Afrikaans (12,7%).

More than two thirds of the Free State population aged 20 years and older (69,5%) have secondary education. Only 6,2% have tertiary education, rising to 9,6% in the Mangaung Metropolitan area. In 2016, 75,2% of households rated the quality of public schools in their communities as good, and 24% rated them as average. The province is served by two public higher education institutions, namely CUT and the University of the Free State, plus Unisa for distance education. CUT and UFS enrolled 58 975 students between the two institutions in 2018. UFS has faculties of Law and Theology and Religion, which are not offered at CUT, while CUT has a faculty of Engineering, which is not offered by UFS. About half of CUT's enrolments are in Science, Engineering and Technology (SET), while the proportion of SET enrolments at UFS is below 30%.

There is a growing number of private higher education institutions in the country, about a dozen of which have a presence in the Free State. There are four TVET colleges in the province, Motheo, Maluti, Goldfields, and Flavius Mareka, which all operate on a multi-campus basis. There are also 16 registered private colleges operating in the Free State, most of them in Bloemfontein,

The debate on the nature of the university of the future has been overtaken by COVID-19. Many universities were grappling with the question of how best to respond to the Fourth Industrial Revolution. CUT was one of a small number of South African universities that were planning to introduce online (or distance education) programmes in the period 2020 to 2025. The sudden emergence of the COVID-19 pandemic forced a scramble among universities worldwide to move to online learning to keep their academic programmes alive. CUT introduced online learning across all its faculties with effect from April 2020.

Access to high quality post-school education is seen by the Government as a major driver in fighting poverty and inequality. A recent document by the Department of Higher Education and Training (DHET), *A Framework for Enrolment Planning 2020-2025*, states that the National Development Plan must continue to be the overarching document from which university enrolment plans are derived. It notes the following targets, among others, that the NDP sets for universities:

- Increase enrolments by 70%, from 950 000 in 2010 to 1,6 million by 2030.
- Increase the percentage of PhD-qualified staff from 34% to over 75%.
- Increase the number of doctoral graduates a year from 1 420 to more than 5 000.
- Increase the number of graduates in SET significantly.

Referring to the Fourth Industrial Revolution, the DHET predicts that workplaces will increasingly seek graduates who have cognitive and technical skills in areas of digital technology, such as robotics, virtual reality, cloud technology, big data, artificial intelligence, the internet of things, and automation. They should, however, also possess transversal skills (or "soft skills") such as an innovative mindset, an entrepreneurial mindset, ethical behaviour, teamwork, leadership, a global perspective, interdisciplinary thinking, creativity and design, empathy, social responsibility, and employability.

"Strong linkages between academia and workplaces become more necessary than ever and programme delivery modalities that have strong workplace-based components are likely to be required" (DHET 2018:9).

The academic offerings of CUT are delivered through four faculties: the faculties of Engineering, Built Environment and Information Technology (FEBIT), Health and Environmental Sciences, Humanities, and Management Sciences. The largest faculty is the Faculty of Management Sciences (32,2% of student enrolments in 2019), followed by the Faculty of Engineering, Built Environment and Information Technology (30,1%), Humanities (28%), and Health and Environmental Sciences (9,7%).

In terms of the major field of study, almost 50% of enrolments are in SET, with about 25% in Business and Management Sciences, 20% in Education, and 5% in Other Humanities.

All CUT qualifications were offered by contact mode of delivery between 2017 and 2019. Up to 2016, a small number of students in the Faculty of Management Sciences were enrolled in a flexible, blended learning mode of tuition, considered distance education by the DHET. The university is planning to enrol 1,935 students in online, flexible and technology-infused programmes by 2025, which represents 8,6% of the total projected enrolment in 2025.

The vast majority of CUT enrolments are for undergraduate studies. The proportion of postgraduate enrolments hovered between 6% and 7% for the period 2013 to 2017. There has been a steady increase in the number of postgraduate students since 2015, but the proportion declined slightly as the number of undergraduate students rose rapidly.

CUT has achieved an overall pass rate (or degree credit success rate) for the period 2011 to 2018 of between 76% and 78%. The undergraduate pass rate has ranged between 75% and 79% for the period, and has generally been on or above target.

The total number of CUT graduates has grown from 2 805 in 2011 to 4 082 in 2018, closely tracking the university's targets for the period. The postgraduate component has grown from 276 to 342 graduates in the same period.

The throughput rate of the university, which tracks the success of incoming cohorts of CUT students in graduating, shows that about one third of all CUT students who begin a qualification in a particular year will graduate in the minimum time for the qualification. In the minimum time plus one year, the throughput rate rises to about 50%.

For the student cohorts of 2012 to 2014, the Faculty of Humanities has the highest throughput rate in the minimum time plus one year, at about 63%. The Faculty of Engineering, Built Environment and Information Technology (FEBIT) has the lowest throughput rate, fluctuating over these cohort years from a low of 26,32% for the 2012 cohort to a high of 37,39% for the 2014 cohort.

The Faculty of Health and Environmental Sciences, which currently has the highest throughput rate for the 2015 cohort at 54,44%, shows a declining trend from a high of 65,99% for the 2011 year. The throughput rate for the Faculty of Management Sciences fluctuates between a low of 50,44% for the 2015 year and a high of 57,85% for the 2013 year.

National cohort studies of graduating students conducted by the DHET show a slow but steady increase in the throughput of first-time entering South African students in three-year undergraduate Diplomas by contact mode of tuition, in the minimum time, from 16,8% for the 2000 cohort to 26,2% for the 2015 cohort. CUT was slightly ahead of the national average of 19,1% for contact students in 2008, at 22,17%, but its throughput rate in the minimum time has hovered around the same level up to the 2015 cohort.

There has been a significant increase in CUT research outputs in recent years, from a low base. The number of CUT research publication units grew by an average of 11,8% a year during the period 2013 to 2017, from 68,48 to 107,22. CUT's total of 170,22 units in 2018 put it in 20th place among all public universities, up from 21st place in 2017.

CUT's total research output units, which include publications as well as research master's and doctoral graduates, increased by 11,1% a year in the period 2013 to 2017, from 141 to 215. The total increased to 264 in 2018.

When CUT's total research outputs in 2018 are calculated as an average per permanently employed academic staff member, it ranks 18th among the 26 universities, with an average research output of 0,9 per capita. Among the six universities of technology, CUT is in second place behind DUT, which had 1,1 outputs per capita in 2018.

Although CUT is the second smallest of the South African UoTs, it has been on the fastest growth trajectory in recent years, with an average annual growth rate between 2013 and 2017 of 8,1%. Its projected growth rate of 2,7% a year for the period 2020 to 2025 is second only to VUT, which experienced a contraction in the earlier period.

CUT has the third-highest proportion of SET enrolments among the UoTs, at 49% in 2017. Its undergraduate pass rate of 77,3% in 2018 was the fourth highest. In 2018, CUT had the second highest FTE student:staff ration at 39:1, following MUT at 41:1.

The demographic profile of CUT's student body has changed significantly since its early days, and is still evolving. Over the period 2005 to 2016, male students were in the majority, but this changed from 2017. The proportion of female students was 52% in 2018, and the proportion in 2019 was 53%.

In terms of student population group, the proportion of African students at CUT in 2004 was 77,7%, and the proportion of White students was 17,6%. By 2019, the respective proportions were 94,7% and 3,1%.

The proportion of international students at CUT has declined from a high of 7,9% in 2004 to 2,8% in 2019. Provisional enrolments for 2020 show a proportion of 2,1%. The number of international students has ranged between 898 in 2004 and 420 in 2020 (provisional).

The vast majority of CUT's international students (83,5% in 2019) are from the region of the Southern African Development Community (SADC); and most of the SADC students are from Lesotho (80,6% in 2019). Lesotho contributed 67,3% of all international students in 2019.

Equity of outcomes remains a critical issue for the South African higher education system. The DHET's analysis of university throughput rates shows clear disparities in success along gender and group lines. Female students generally outperform male students, while the success rates for African and Coloured students are significantly lower than those of White and Indian students.

The throughput rates for CUT's first-time entering South African students in three-year diplomas show a similar pattern to the national results as far as gender is concerned, but a wider disparity. Among CUT's 2015 cohort of students, 30% of female students graduated in the minimum time, compared to 14,7% of male students.

In terms of population group, the DHET found that nationally 11,9% of the 2008 African cohort graduated in the minimum time, compared with 25,0% for the White cohort. At CUT, results for the 2015 cohort of students completing three-year diplomas in the minimum time show little discrepancy: 21,2% for African students, 19,4% for Coloured students, and 20,2% for White students. The proportion of African students completing in the minimum time declined slightly from 23,1% in 2006; but the proportion of White students declined from 41,2% in 2006.

The provisional total of CUT's permanent staff complement in 2019 was 905, of whom 55% were female and 45% male. A little over two thirds of the permanent staff (67,3%) were African, 23,8% White, 7,5% Coloured, and 1,4% Indian.

Of the total permanent staff, 302 (33,3%) were employed as academic staff, or instruction/ research professionals in the terminology of the DHET. Of the academic staff, 54,3% were male and 45,7% female – down from 47,7% in 2018. The proportion of African academic staff overtook the proportion of White academic staff for the first time in 2017.

The senior academic ranks of Professor and Associate Professor in 2019 were occupied almost exclusively by African and White members of staff, in almost equal measure. Among the nine Professors, four were African, four White and one Indian. Among the 24 Associate Professors, 45,8% were African and 50% White.

Of the 51 Senior Lecturers, 56,8% were White and 39,2% African. African staff predominated at the levels of Lecturer (53,9%) and Junior Lecturer (52,1%).

The breakdown by gender differs significantly between population groups. Among White academic staff, there are more females in all ranks except Professor, where there are none. Among African staff, the proportion of females is markedly lower than males in all ranks except Junior Lecturer.

All of the Deans and most senior managers of the university are located on the Bloemfontein campus. The Senior Management representative on the Welkom campus is the Campus Director, who reports to the Deputy Vice-Chancellor: Resources and Operations, in Bloemfontein. The Campus Director is a full member of the university's Management Committee (Mancom), without executive decision-making powers.

The total student enrolments on the Welkom campus in 2019 of 4 613 represents 22% of the total CUT enrolment of 21 225. Welkom students are enrolled in the three faculties of FEBIT, Humanities and Management Sciences.

3. THE NEW NORMAL

3.1 INTRODUCTION

The year 2020 will be remembered as the year of the coronavirus.

The coronavirus, later officially named COVID-19, first appeared in Wuhan, China, in December 2019. It soon spread around the globe, arriving in South African in March 2020. The lockdown implemented by the Government to slow the spread of the virus had a dramatic impact on the lives of the entire population, and a devastating effect on the economy.

Education at all levels was disrupted for months, even after the relaxation of the most stringent restrictions. From mid-April, CUT's main communication with its students was electronic, via the Blackboard learning management system (LMS), called eThuto. By September, with the lockdown relaxed to Level 2, there was still only a limited number of staff and students on the Bloemfontein and Welkom campuses.

Among the issues faced by the university during this period were the following:

a) Working out a new modality of teaching in this environment, including
   - communication,
   - modified assessments,
   - development of teaching material; and
   - adjustment of timeframes in response to changing pandemic regulations.

b) Resources for staff working from home.

c) Students with limited electronic equipment (laptop, tablet, smart phone, etc.).

d) Connectivity for staff and students.

e) Conditions at home or residence of students and staff.

f) Financial difficulties (job losses in family, lost income).

g) Family issues (school children at home, families confined to their homes, etc).

As noted in CUT's Vision 2030 document, the university was forced to accelerate its planned transition towards more online and flexible technology-infused programmes (CUT 2020a:2). Only after the relaxation of the national lockdown to Level 1 was the university able to welcome students back on campus, under strict COVID-19 protocols, from 12 October 2020.

When the virus reached South Africa, CUT was in the process of developing its new Vision 2030 statement and this Strategic Plan 2021-2025. The university was already grappling with the question of how it should respond to the technological changes of the Fourth Industrial Revolution (4IR). It had to consider the questions of *what* educational programmes to provide by 2030 and *how* to provide them (CUT 2020a:6).

These two historical waves, COVID-19 and 4IR, coalesce for CUT in the main strategic themes to be pursued in the period 2021-2025: digital transformation and institutional sustainability.

3.2 DIGITAL TRANSFORMATION

All universities are struggling to answer the questions: what does digitisation mean? And as technology rapidly changes, how can we leverage it to our advantage and the advantage of our students?

With a university qualification being the standard entry point to many jobs, universities need to figure out a way to offer more services, both more cheaply and to a more diverse population. The more diverse the students, the more resources are required to teach them. When students from poor backgrounds are accepted at a university, they often become frustrated as a result of a lack of support, and drop out.

At the same time, there is much to be gained from the “new normal”. Soft skills essential to the future workforce will include more than knowing how to hold a one-on-one conversation. People growing up in the digital age will have to navigate online relationships, perhaps working with bosses they never meet in person.

The COVID-19 pandemic and the consequent lockdown have brought into sharp relief the great inequalities in South African society. There is a huge divide in access to resources, whether it be the basic necessities of life such as food and water or technological resources such as computers, bandwidth and data.

The CUT Situational Analysis, conducted as part of the university’s planning process, noted that a cell phone is the household product most owned in South Africa. In more than 90% of households, at least one member of the household has a cell phone. When it comes to internet access, however, only 10,6% of households in the Free State reported having access in 2016. Twelve per cent of male-headed households had such access, compared to 8,6% of female-headed households (CUT 2020b:9).

While there is a realisation on the part of Government of the need to build a more equitable economy in the wake of COVID-19, this cannot happen overnight. In the meantime, the inequity in relation to internet access remains a stumbling block in the efforts of CUT (and other universities and most schools) to provide online learning opportunities for students.

In its response to the lockdown in 2020, CUT purchased 5 000 electronic devices for distribution to students in need and negotiated zero-rated access to the CUT website with some cell phone service providers. Almost R6 million was spent on devices and another R2,1million a month on the purchase of 21 500 data bundles (CUT 2020c:1).

In order to virus-proof its academic programmes, CUT will have to ensure in future that its students have a suitable device for online learning and access to the necessary data.

The university’s information technology backbone may require upgrading. This might include additional on-campus servers and other hardware, off-campus hosting of services in the cloud, and additional cyber security to protect services.

At least two of the faculties, Engineering, Built Environment and Information Technology (FEBIT) and Management Sciences, have plans for new modes of online delivery of some programmes. FEBIT wants to be able to present lectures in one venue while streaming them to another. Management Sciences has in mind to deliver short courses electronically to corporate clients.

The preparation of learning materials for online delivery to students will require a multi-faceted approach over the next five years. While many academic staff are already familiar with online teaching, ongoing training will be required to bring all teaching staff to an advanced level. Even

when face-to-face classes resume, they are likely to be characterised by a blended learning approach and pedagogical strategies such as the “flipped classroom”.

CUT has been able to access funding through the DHET’s University Capacity Development Plan (UCDP) to provide capacity building workshops for newly appointed and existing lecturers on issues such as the higher education context, curriculum development, learning facilitation, assessment of learning, and quality enhancement. Such interventions can possibly be expanded to incorporate the new pedagogies required in a post-COVID-19 world.

During the national lockdown, to curb the spread of the COVID-19 virus, CUT’s learning management system, called eThuto, became the primary means of communication with students and delivery of the university’s academic programmes.

The university’s unit for E-Learning and Educational Technology, in the Centre for Innovative Learning and Teaching (CILT), has been providing training for lecturers on the use of eThuto. Two great motivators for academic staff to embrace eThuto have been the #FeesMustFall protests of 2015-2017 and the COVID-19 pandemic, both of which disrupted the traditional face-to-face classes.

Lecturers who were already using a blended learning approach and had learning materials available on eThuto were able to continue with their academic programmes when the COVID-19 lockdown was imposed in March. The E-Learning Unit provided training for others, especially part-time lecturers, using Zoom and MS Teams.

As the Blackboard LMS is hosted in the cloud, there were no problems regarding access to the platform, provided staff and students had the necessary connectivity. In the 30 days to the end of May, more than 17 000 students and lecturers connected to eThuto. Some 1 250 subjects or modules are available on the LMS.

The E-Learning Unit saw the need to expand the LMS to include a collaboration module, which will enable lecturers to present online classes as well as integrating a module that will enable lecturers to communicate from eThuto with students on WhatsApp. This will increase the online communication capabilities of CUT and make the platform more accessible to students with limited data.

The integration of Blackboard’s Grade Centre with the university’s main administrative system, ITS, will simplify the capturing of assessment marks.

Online assessment is itself one of the most difficult issues to deal with. Universities around the world are struggling with the problem. How can the university be sure that it is the student himself or herself who is answering a test or submitting an assignment, and that he or she has not enlisted the help of Google or other online resources?

One approach, which provides only partial assurance, is to make the assessment available to all the relevant students at the same time and to allow a limited and strictly enforced time available for its completion. Other solutions will no doubt be developed and become available, at a cost.

The new reality of the post-COVID world, in which universities must make provision for completely online learning and assessment at times, requires the development of new policies and guidelines, and the practices adopted will need to be quality assured.

The role of the university libraries in support of teaching, learning and research was already changing before the pandemic; but the pace of change is likely to accelerate. Libraries are purchasing more online books and journals, and fewer hard copies. Library spaces are being re-designed as places for students to meet and discuss, rather than silent areas for reading.

Whatever the modes of assessment adopted, CUT will have to give attention in the coming years to the success rates of its students. The university has set itself the target of maintaining at least a 79% overall pass rate (or degree credit success rate) for the period 2021 to 2025. This reflects the proportion of students enrolled for particular subjects who pass those subjects at the end of the year.

The throughput rate reflects the proportion of students enrolling for a qualification who successfully complete the qualification and graduate. CUT's throughput rates have not been improving in recent years, although there has been a significant improvement in national throughput rates. The CUT Situational Analysis notes that the national average for first-time entering South African students completing a three-year diploma qualification in the minimum time has increased from 19,1% for the 2008 cohort of students to 26,2% for the 2015 cohort. Over the same period, CUT's throughput has hovered around 22%. It was at 22,17% for the 2008 cohort and 21.15% for the 2015 cohort (CUT 2020b:29).

The DHET has recommended that all universities invest in data analytics to better understand their student dropout and throughput rates (DHET 2019a:146).

Data analytics is one of the tools of the digital revolution that can assist universities in improving their student success rates. Blackboard, supplier of the university's LMS, offers an analytics module that provides real-time reports to students and their lecturers on learning progress. For example, students can see after every assessment how well they have done in relation to their peers. Lecturers can see at any time how actively students are engaging with the learning materials on eThuto.

The E-Learning Unit has started a project to develop a data analytics environment for teaching and learning at CUT.

Predictive analytics is a branch of data analytics which relies on the mining of big data (in this case the history of students enrolling for particular qualifications) to find those factors with a significant effect on student success. An algorithm is then applied to incoming students to predict which of them is at risk of failing, or likely to succeed.

Both real-time and predictive analytics can assist the university to identify students who might benefit from additional support, and to provide such support in a targeted fashion for maximum impact.

CUT has an existing system of academic development support for undergraduate students, funded through the DHET's University Capacity Development Plan (UCDP). This includes the appointment and training of peer mentors for first-year students; the provision of supplementary instruction by student leaders in subjects or modules with high failure rates; and roadshows for undergraduate students on the graduate attributes expected of them.

A report on the UCDP for 2019 notes that 50 peer mentors and 130 supplementary instruction leaders were appointed and trained (CUT 2019b:14-15). However, there were not enough mentors to cater for all first-year students, and only a limited number of at-risk modules could be supported by supplementary instruction (CUT 2019b:16,18).

The use of data analytics, while giving rise to some ethical issues to be navigated, will make it possible to deploy whatever resources are available in the most effective way.

A number of universities in South Africa have a head start on CUT in the development of data analytics, some of them through the Siyaphumelela (we succeed) project initiated in 2014 and funded by the Kresge Foundation. The current partner universities of Siyaphumelela are Free

State, Witwatersrand, KwaZulu-Natal, Nelson Mandela, Cape Town, Western Cape, and Durban University of Technology. The University of Pretoria is a self-funding member of the network.

The Siyaphumelela initiative helps partner institutions “to foster a student success culture, identify data and tools to improve student success, strengthen institutional capacity, and develop practices for long-term student success” (Siyaphumelela 2020). An annual conference organised by the network is open to participation by other institutions.

While the academic project of CUT was hugely affected by COVID-19, the university has many other areas of activity that were also impacted. A range of administrative functions, in human resources and finance for example, require the exchange of documents. The efficiency of the university in the post-COVID era will be greatly enhanced by the digitisation of its business processes and their automation wherever possible.

Further details relating to the roll-out of digital transformation at CUT, as well as its costing, will emanate from a Task Team headed by the Deputy Vice-Chancellor: Research, Innovation and Engagement, Professor Alfred Ngowi.

3.3 INSTITUTIONAL SUSTAINABILITY

In the development of CUT’s Vision 2030, two overriding themes that emerged from stakeholder engagements were the location of CUT and technological change (CUT 2020a:6). The impact of technological change and the strategic response of the university have been dealt with above. The broadly understood notion of CUT’s location relates, at least in part, to the strategic imperative for the next five years of institutional sustainability.

One of the university’s strategic goals is “to ensure institutional sustainability, expand streams of income, and enhance the CUT brand” (CUT 2020a:3). For any university, financial sustainability is an important component of broader institutional sustainability. Located as it is within the South African higher education system, CUT’s primary source of income is the subsidy it receives from the national government. This is based mainly on its student enrolments, expressed as student full-time equivalents (FTEs) and teaching input and output units.

In this regard, as dealt with more fully in the next chapter, CUT is projecting an average growth rate in student numbers of 3% a year between 2017 and 2025. CUT was the fastest growing of the six UoTs in the period 2013 to 2017, and its projected growth rate to 2025 is second only to Vaal University of Technology (VUT), which experienced a contraction in the earlier period.

3.3.1 Financial sustainability

Income diversification and generation is part of a strategy to make funds available for academic development, be it teaching, research, or innovation activities. Income diversification should enable the expansion of the institution’s mission – by providing new resources to foster the achievement of new or pre-existing tasks striving for excellence in teaching, research and innovation; by offering opportunities to diverse groups of learners; and by providing a conducive environment for talented young researchers.

Financial sustainability in this plan covers the following five income streams that the university identifies:

- The first income stream is derived from government subsidy. It is expected that this income stream, in real terms, will be further constrained as government juggles competing socio-economic priorities.
- The second income stream is derived from tuition fees, which can be expected to rise in line with the increase in student numbers. A large proportion of CUT's fees are paid via the National Student Financial Aid Scheme (NSFAS), which provides some protection against the accumulation of bad debt. Funding from the National Research Foundation (NRF) for research development also falls into this category.
- The third stream of income is generated mainly by CUT's commercial activities that include contract research, consulting, conferences and facilities rentals. Specific targets have been set for the generation of third-stream income, with the faculties expected to contribute a total of R20 million a year by 2025.
- The fourth stream of income is derived from philanthropic donations and bequests. The Development entity in the Vice-Chancellor's Office drives this effort. One of the main projects that will be spearheaded by the Development entity is the sourcing of funding for the development of the newly acquired precinct of the Free State Sports Science Institute.
- The fifth stream of income refers to income generated through investments undertaken, including income from the management of investment funds and income from licensing agreements, spin-offs and other commercialisation efforts not covered by the other four streams.

Of the alternative income streams, third-stream income will contribute most to additional CUT revenue. A key component of the university's strategy for the growth of third-stream income is the CUT Innovation Services (or CUTIS), which was established in 2010 for the commercialisation of CUT's intellectual capital and other commercial activity. The university's strategy will focus on CUTIS being strategically positioned and supported.

CUTIS is a proprietary company, wholly owned by the university. In terms of governance, it has a Council-approved Board of Directors to drive its mandate. The primary mandate is to generate sustainable income for the university by leveraging CUT's intellectual property, its knowledge and infrastructure, such as laboratories.

CUTIS has four revenue streams:

- short learning programmes;
- rental of facilities;
- contract research and consulting; and
- Special projects.

CUTIS is expected to contribute a minimum of R100 million a year to CUT's revenue streams until 2025 through contracting projects to CUT and payment of dividends from 2024.

The second mandate of CUTIS is a public good mandate, to enhance the innovation ecosystem of the university, through the Innovation and Technology Transfer function. It aims to foster socio-economic development through incubation and the commercialisation of the intellectual property of students, staff, and other entrepreneurs.

In pursuit of this mandate, CUTIS is focusing on leveraging the university's competencies in four main areas:

- agriculture, food and hospitality;
- ICT and smart industries;
- The circular economy (sustainability and waste management); and
- advanced and additive manufacturing.

CUTIS has an iGym (Idea Gymnasium) as a platform for filtering ideas and helping to bring them to life. A FabLab (Fabrication Laboratory) allows students and others to develop designs and realise them through 3D printing and other technologies.

The university's Finance function will co-ordinate the reporting of all streams of income and provide evidence of progress in this regard. All entities responsible for generating income will provide the necessary reporting information to Finance in order to fulfil this objective. The Finance Department will present quarterly reports to the relevant structures, such as the Extended Management Committee (EMC), for adoption. It is important that all reports on various financial streams are supported by evidence for audit purposes.

3.3.2 Broader sustainability

Located as it is within the South African economy, CUT is likely to encounter some difficulty in sourcing additional funding for the next few years. The national lockdown imposed to slow the spread of COVID-19 has had a negative impact on an already weak economy. Predictions of economists foresee a contraction in the economy in 2020 of anything from 8% to 20%.

Careful management of the available resources will be required. During the lockdown, the university implemented a 10% cut in its operational budget to offset a decrease in subsidies implemented by government and additional expenses incurred as a result of the pandemic (2020d:2).

The notion of institutional sustainability, however, is much broader than the university's financial position. In the implementation manual attached to its Regulations for Reporting by Public Higher Education Institutions, the DHET quotes King III as saying that "sustainability is the primary moral and economic imperative of the 21st century". It refers to the inter-connectedness of "nature, society, and public higher education institutions". Sustainability requires good governance, including ethical and effective leadership, and corporate citizenship on the part of the institution (DHET 2014:12).

In CUT's Vision 2030, it is noted that the location of CUT and its aspiration to be a leading African University of Technology links it to South Africa's National Development Plan 2030, the African Union's Agenda 2063, and the UN's sustainable development goals for 2030 (CUT 2020a:6).

Among the themes to emerge from the Vision 2030 stakeholder engagements was the development of clean, efficient, eco-friendly and smart campuses (CUT 2020a:8). The university has already invested in renewable energy, with its CUT Solar 1 plant on the Bloemfontein campus, which produces 10% of the campus' energy needs from sun-tracking solar panel arrays. A similar plant is planned for the Welkom campus. The university plans to derive 40% of its energy needs from renewable energy by 2025.

"Solar flowers" are beginning to sprout on the campuses. These devices generate electricity from solar panels and allow students or staff to charge their cell phones or other devices.

By 2030, the university aims to generate 80% of its energy needs from renewable energy and to derive 60% of its water usage from natural water sources.

4. STUDENT ENROLMENT TARGETS

4.1 INTRODUCTION

The period of this Strategic Plan, 2021-2025, overlaps with the period of CUT's Student Enrolment Plan 2020-2025. In this section, the main features of the Enrolment Plan, as they relate to students, are incorporated into CUT's Strategic Plan.

The tables shown are extracted from the Student Enrolment Plan. They typically include the university's actual data for 2017, the average annual increase (or decrease) for the period 2013 to 2017, the proposed targets for the years 2021 to 2025 (the years relevant to this Strategic Plan), and the average annual increase (or decrease) for the period 2017 to 2025.

The tables are numbered sequentially in this plan, but the number of each table in the Student Enrolment Plan is provided in the reference below the table. The titles of some tables, as they appear in the Enrolment Plan, have been shortened.

In the case of some key data, graphs are provided that show long-term trends. Typically, actual numbers are shown from the year 2006 to 2019 or 2020, along with targets from the university's Student Enrolment Plans for the years 2006 to 2025, and a dotted trend line based on the actual figures.

4.2 STUDENT HEADCOUNTS

The total student enrolment of CUT is planned to increase by 3,0% a year on average, from 18 185 in 2017 to 23 078 in 2025.

The university's total enrolment in 2019 was 21 225, and its provisional enrolment for 2020, at the end of July, was 20 534. The reduction is the result of a strategy, agreed with the DHET, to address the rapid increase in student numbers in the period 2017 to 2019.

From 2017 to 2025, CUT's total undergraduate enrolments are expected to increase by 1,5% a year on average, while postgraduate enrolments are projected to rise by 17,2% a year on average, compared with an average of 6,6% a year in the previous period. Most of the postgraduate growth will be in the category of postgraduate to Master's level, which includes the new HEQSF-aligned Postgraduate Diploma qualifications.

CUT is not projecting any enrolments of occasional students for the planning period, although there were 118 registered in 2017.

Table 1 below shows the actual 2017 enrolments and the targets for the period 2021 to 2025.

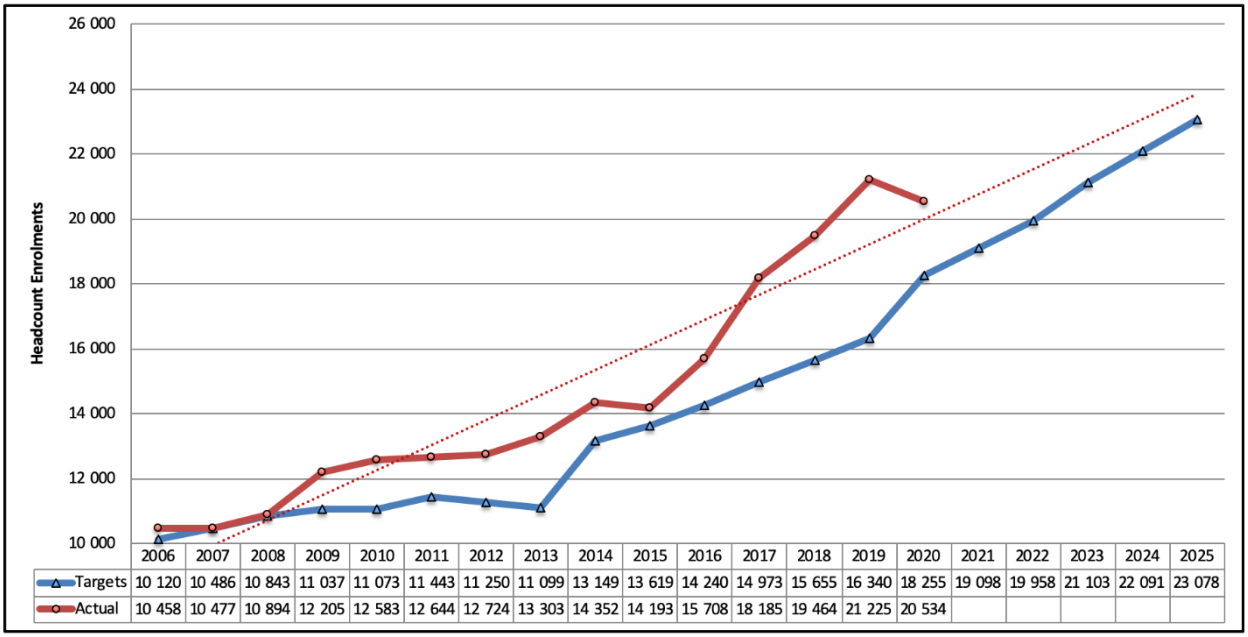
Table 1: Projected Headcount Totals

	Actual		Planned/expected enrolment					
	2017	Average annual increase: 2013-2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025	Average annual increase: 2017-2025
First-time entering undergraduates	4 995	10,0%	4 644	4 677	4 718	4 740	4 808	-0,5%
Total undergraduate	**16 929**	**8,1%**	**16 993**	**17 205**	**17 787**	**18 357**	**19 027**	**1,5%**
Postgraduate to masters level	602	1,6%	1 462	2 052	2 564	2 945	3 225	23,3%
Masters	380	14,3%	440	477	508	529	542	4,5%
Doctors	156	13,8%	203	224	245	260	283	7,7%
Total postgraduate	**1 138**	**6,6%**	**2 106**	**2 753**	**3 316**	**3 734**	**4 051**	**17,2%**
Occasional students	118	229,6%						-100,0%
TOTAL ENROLMENT	**18 185**	**8,1%**	**19 098**	**19 958**	**21 103**	**22 091**	**23 078**	**3,0%**

Source: CUT Student Enrolment Plan, Table 1.

Figure 1 shows the total number of CUT enrolments from 2006 to 2020 (provisional), with student enrolment targets from 2006 to 2025. The dotted line reflects the trend in actual enrolments, projected to 2025.

Figure 1: CUT enrolments 2006-2020 and targets 2006-2025



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Targets	10 120	10 486	10 843	11 037	11 073	11 443	11 250	11 099	13 149	13 619	14 240	14 973	15 655	16 340	18 255	19 098	19 958	21 103	22 091	23 078
Actual	10 458	10 477	10 894	12 205	12 583	12 644	12 724	13 303	14 352	14 193	15 708	18 185	19 464	21 225	20 534					

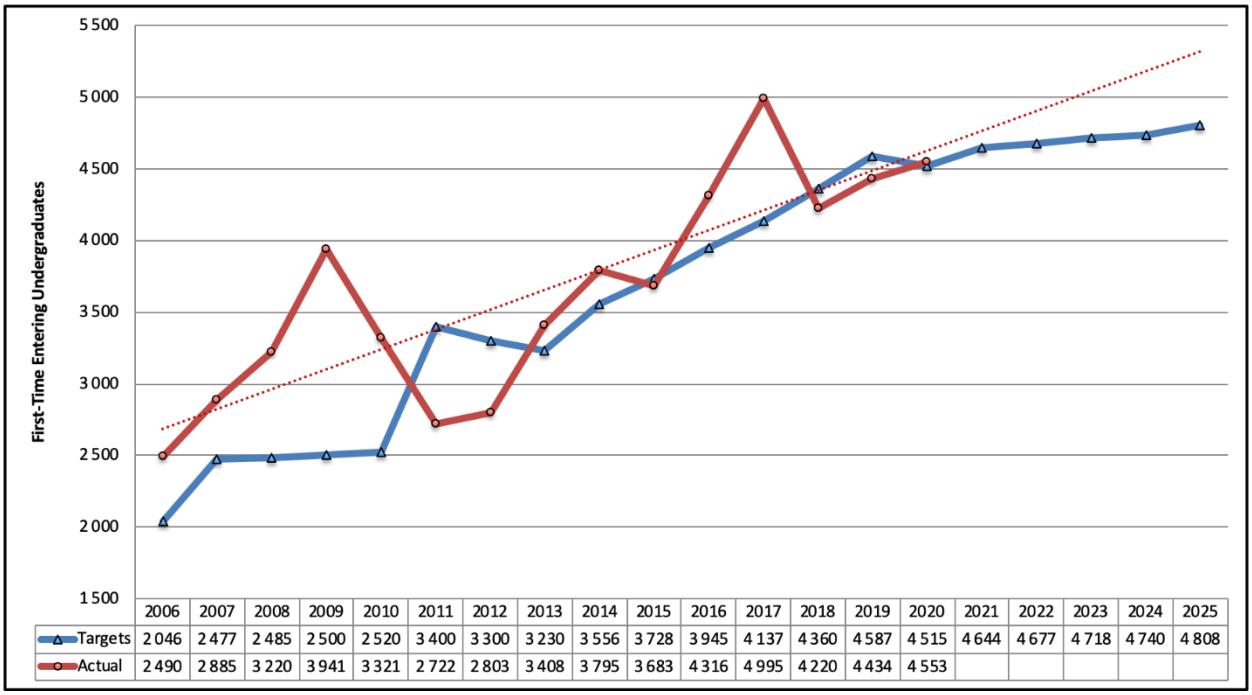
Data source: CUT enrolment Plans and PowerHEDA Cube Report

The number of first-time entering undergraduate students is expected to decline by an average of 0,5% a year from 2017 to 2025, from 4 995 to 4 808. There was an increase of 10,0% a year on average in the period 2013 to 2017.

CUT's number of first-time entering undergraduates at the end of July 2020 was 4 553 against a target of 4 515.

The graph in Figure 2 below reflects the pattern of first-time entering undergraduate enrolments, compared to the university's targets for 2006 to 2020, with projections to 2025.

Figure 2: CUT first-time entering undergraduate enrolments 2006-2020 and targets 2006-2025



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Targets	2 046	2 477	2 485	2 500	2 520	3 400	3 300	3 230	3 556	3 728	3 945	4 137	4 360	4 587	4 515	4 644	4 677	4 718	4 740	4 808
Actual	2 490	2 885	3 220	3 941	3 321	2 722	2 803	3 408	3 795	3 683	4 316	4 995	4 220	4 434	4 553					

Data source: CUT Enrolment Plans and PowerHEDA Cube Report

4.3 STUDENT ENROLMENTS BY QUALIFICATION TYPE

CUT, like all the country's universities of technology, is currently in a transitional phase with regard to the type of qualifications it offers. The year 2019 was the last year in which universities could enrol new students for qualifications that are not aligned to the Higher Education Qualifications Sub-Framework (HEQSF).

For UoTs, this means that no new enrolments can be registered for National Diplomas and BTech Degrees. The National Diplomas are now being phased out in favour of HEQSF-aligned Diplomas, or possibly Bachelor's Degrees, and the BTech Degree is replaced by the Advanced Diploma. Students who wish to progress from a Diploma to a Master's Degree will have to complete two subsequent one-year qualifications, the Advanced Diploma and the Postgraduate Diploma.

This transition has been factored into CUT's Student Enrolment Plan. As can be seen in Table 2 below, an increase of 51,5% a year on average is expected from 2017 to 2025 in the number of enrolments at the level of the Advanced Diploma and the Postgraduate Certificate in Education (PGCE).

An increase of 23,3% a year on average is projected at the level "Postgraduate to Masters", where the new Postgraduate Diplomas are located.

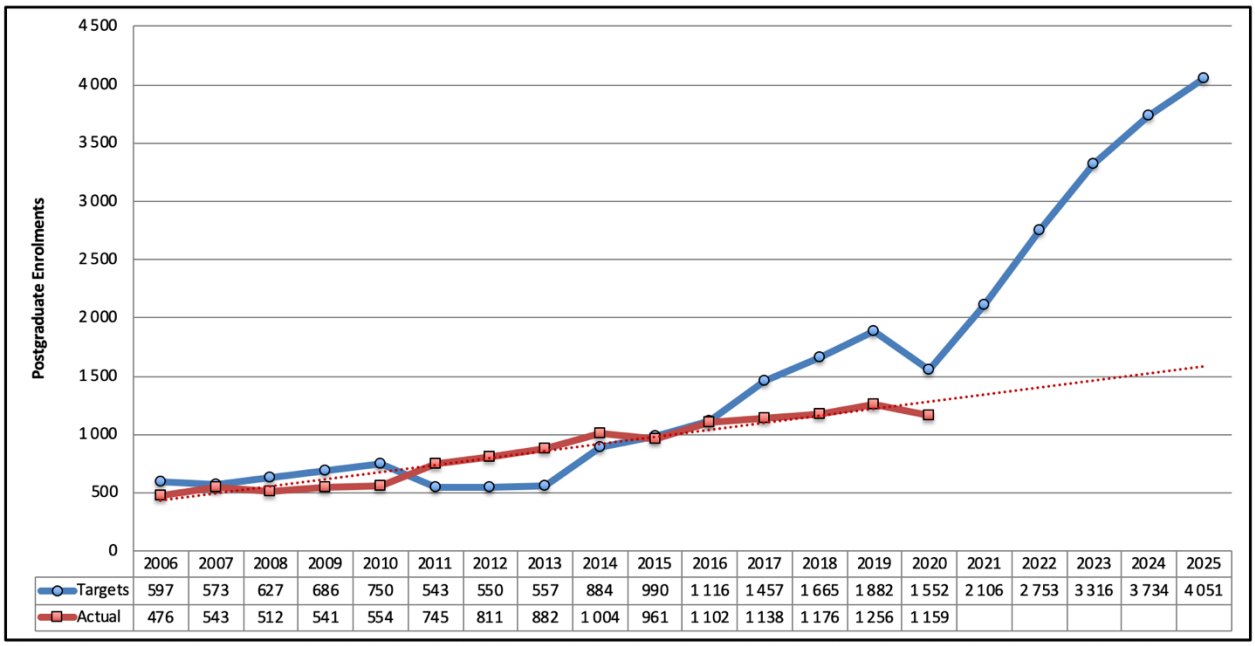
Table 2: Enrolments by Qualification Type

	Actual		Planned/expected					
	2017	Average annual increase: 2013-2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025	Average annual increase: 2017-2025
Undergraduate diplomas & certificates	9 944	3,9%	9 087	8 715	8 569	8 631	8 786	-1,5%
Advanced diploma/PGCE	114	#NUM!	1 624	2 063	2 603	2 925	3 172	51,5%
Undergraduate degrees	6 871	15,4%	6 282	6 427	6 615	6 800	7 069	0,4%
Total undergraduate	**16 929**	**8,1%**	**16 993**	**17 205**	**17 787**	**18 357**	**19 027**	**1,5%**
Postgraduate to masters level	602	1,6%	1 462	2 052	2 564	2 945	3 225	23,3%
Masters	380	14,3%	440	477	508	529	542	4,5%
Doctors	156	13,8%	203	224	245	260	283	7,7%
Total postgraduate	**1 138**	**6,6%**	**2 106**	**2 753**	**3 316**	**3 734**	**4 051**	**17,2%**
Occasional students	118	229,6%	0	0	0	0	0	-100,0%
TOTAL ENROLMENT	**18 185**	**8,1%**	**19 098**	**19 958**	**21 103**	**22 091**	**23 078**	**3,0%**

Source: CUT Student Enrolment Plan, Table 5.

The university is projecting an overall increase in its postgraduate enrolments of 17,2% a year on average between 2017 and 2025, compared with an average increase of 6,6% a year in the period 2013 to 2017. This rapid and unusual increase in postgraduate enrolments, which can be clearly seen in Figure 3, is mainly attributable to the introduction of the Postgraduate Diploma.

Figure 3: CUT postgraduate enrolments 2006-2020 and targets 2006-2025



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Targets	597	573	627	686	750	543	550	557	884	990	1 116	1 457	1 665	1 882	1 552	2 106	2 753	3 316	3 734	4 051
Actual	476	543	512	541	554	745	811	882	1 004	961	1 102	1 138	1 176	1 256	1 159					

Data source: CUT Student Enrolment Plans and PowerHEDA Cube Report

4.4 STUDENT ENROLMENTS IN FOUNDATION PROGRAMMES

There is a widely-held view that many of the students who qualify for entry to higher education are ill-prepared for the transition from high school to university, and particularly to qualifications in the STEM areas of study (Science, Engineering, Technology, Mathematics).

Foundation programmes, also known as extended curriculum programmes (ECP), are an attempt on the part of universities and the DHET to widen access by offering three-year undergraduate qualifications over four years and providing additional academic support for students.

In the past, CUT has offered foundation programmes for nine National Diplomas. In the period 2020 to 2025, it will offer 15 foundation programmes in HEQSF-aligned Diploma and Bachelor's qualifications, mainly in Engineering and Science. They are:

- Bachelor of Construction in Construction Management
- Bachelor of Construction in Quantity Surveying
- Bachelor of Dental Therapy
- Bachelor of Health Sciences in Medical Laboratory Science
- Bachelor of Education in Senior Phase and Further Education and Training Teaching
- Bachelor of Radiography in Diagnostics
- Bachelor of Science in Environmental Health
- Bachelor of Management Sciences in Accountancy
- Bachelor of Management Sciences in Internal Auditing
- Diploma in Hospitality Management
- Diploma in Agricultural Management
- Diploma in Computer Networking
- Diploma in Design and Studio Art
- Diploma in Information Technology
- Diploma in Somatology

The number of students to be admitted to the first year of these programmes is projected to rise from 456 in 2020 to 852 in 2025.

4.5 STUDENT ENROLMENTS BY MODE OF DELIVERY

In the past, the Department of Higher Education and Training (DHET) took the view that all universities other than Unisa should offer their qualifications by contact mode of tuition only, and that Unisa alone should offer distance mode education. Given the imperative to increase higher education enrolments and the infrastructural costs of expanding contact tuition, the DHET has altered its stance in recent years.

In preparing their Student Enrolment Plans for 2020 to 2025, all universities were invited by the DHET to plan for distance enrolments; but not much enthusiasm was shown for this innovation.

CUT, however, is one of a small number of universities, and one of three UoTs, to respond positively. It planned to introduce online (or distance) programmes with an intake of 100 students in 2021, rising to 1,935 students by 2025. The 2025 intake will represent 8,4% of the university's total student enrolment in that year. Delays in the finalisation of an agreement with an external service provider to assist in the delivery of the programmes will delay the first enrolments to 2023.

The outbreak of the Coronavirus, COVID-19, in South Africa in March 2020, and the subsequent lockdown of universities and schools, forced universities to move to online education sooner than expected, and on a much wider scale. CUT began offering online tuition across all faculties from 20 April 2020, while the lockdown was still in place, in order to maintain the academic project for 2020 while the resumption of normal classes was awaited.

Table 3 below shows the projected distance enrolments for the period 2021 to 2025. The qualifications concerned are Advanced Diplomas and Postgraduate Diplomas.

Table 3: Distance enrolments by qualification type

	Actual		Planned/expected					
	2017	Average annual increase: 2013-2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025	Average annual increase: 2017-2025
Undergraduate diplomas & certificates	0	-100,0%	0	0	0	0	0	#NUM!
Advanced diploma/PGCE	0	#NUM!	**100**	**190**	**450**	**680**	**840**	#NUM!
Undergraduate degrees	0	-100,0%	0	0	0	0	0	#NUM!
Total undergraduate	**0**	**-100,0%**	**100**	**190**	**450**	**680**	**840**	**#NUM!**
Postgraduate to masters level	0	#NUM!	0	200	580	877	1 095	#NUM!
Masters	0	#NUM!	0	0	0	0	0	#NUM!
Doctors	0	#NUM!	0	0	0	0	0	#NUM!
Total postgraduate	**0**	**#NUM!**	**0**	**200**	**580**	**877**	**1 095**	**#NUM!**
Occasional students	0	#NUM!						#NUM!
TOTAL ENROLMENT	**0**	**-100,0%**	**100**	**390**	**1 030**	**1 557**	**1 935**	**#NUM!**

Source: CUT Student Enrolment Plan, Table 4.

4.6 STUDENT ENROLMENTS BY MAJOR FIELD OF STUDY

As a University of Technology, CUT is expected to offer a high proportion of its programmes in the areas of SET (Science, Engineering, and Technology). The table below shows that CUT is projecting an increase of 2,5% a year on average in the number of SET enrolments from 2017 to 2025. This is lower than the growth rate expected in Business and Management Sciences (3,4%), Education (3,4%) and Other Humanities (3,9%), but from a higher base.

Table 4: Enrolments by major field of study

	Actual		Planned/expected					
	2017	Average annual increase: 2013-2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025	Average annual increase: 2017-2025
Science, engineering, technology	8 897	11,3%	9 427	9 647	9 996	10 404	10 836	2,5%
Business/management	4 533	7,5%	3 957	4 403	5 158	5 587	5 945	3,4%
Education	3 405	13,7%	4 104	4 206	4 209	4 320	4 457	3,4%
Other humanities	1 351	-10,2%	1 610	1 702	1 740	1 779	1 840	3,9%
TOTAL	**18 185**	**8,1%**	**19 098**	**19 958**	**21 103**	**22 091**	**23 078**	**3,0%**

Source: CUT Student Enrolment Plan, Table 8.

The proportion of CUT enrolments in SET is expected to remain close to 50%. As seen in the following table, however, a decline of almost two percentage points is expected between 2017 and 2025, from 48,9% to 47,0%.

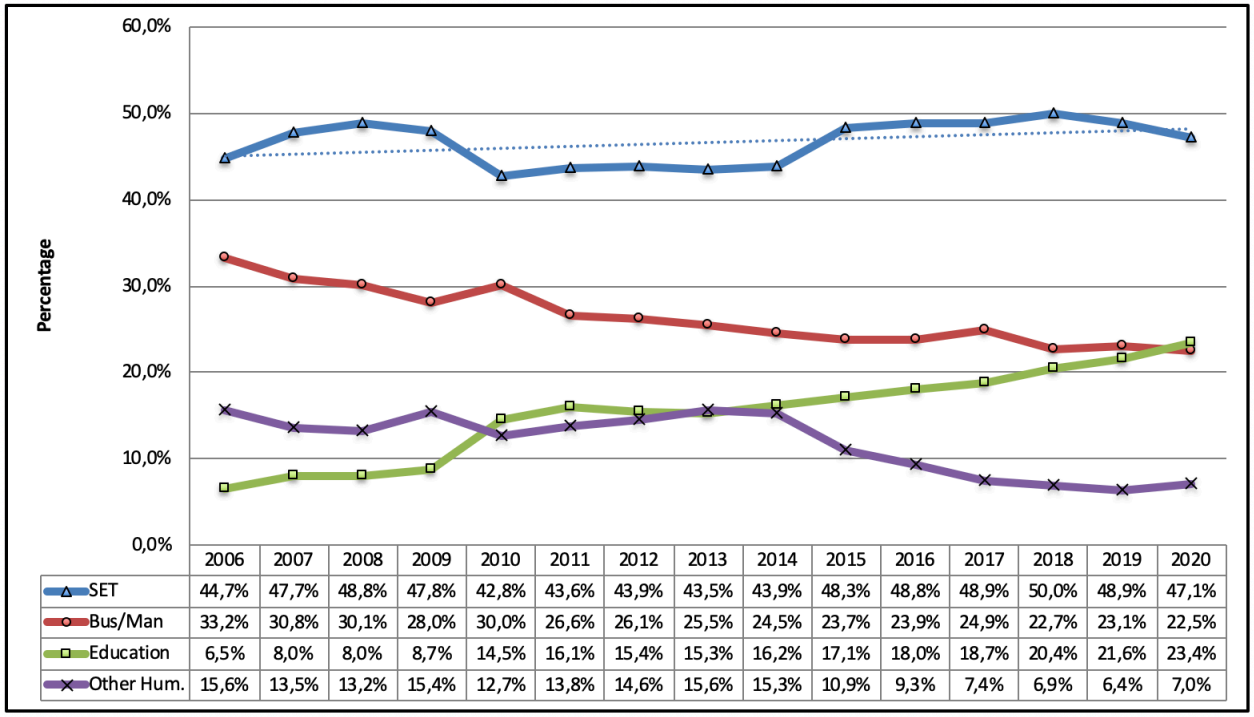
Table 5: Proportion of enrolments by major field of study

	Actual	Planned/expected				
	2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025
Science, engineering, technology	48,9%	49,4%	48,3%	47,4%	47,1%	47,0%
Business/management	24,9%	20,7%	22,1%	24,4%	25,3%	25,8%
Education	18,7%	21,5%	21,1%	19,9%	19,6%	19,3%
Other humanities	7,4%	8,4%	8,5%	8,2%	8,1%	8,0%
TOTAL	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Source: CUT Student Enrolment Plan, Table 9.

Figure 4 below reflects changes in the proportion of enrolments in the four major fields of study, from 2006 to 2019. The strongest growth has been in Education, which is considered a niche area of the university, while the proportion of enrolments in SET has hovered between 43% and 50%.

Figure 4: CUT enrolments by major field of study, 2006-2020



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SET	44,7%	47,7%	48,8%	47,8%	42,8%	43,6%	43,9%	43,5%	43,9%	48,3%	48,8%	48,9%	50,0%	48,9%	47,1%
Bus/Man	33,2%	30,8%	30,1%	28,0%	30,0%	26,6%	26,1%	25,5%	24,5%	23,7%	23,9%	24,9%	22,7%	23,1%	22,5%
Education	6,5%	8,0%	8,0%	8,7%	14,5%	16,1%	15,4%	15,3%	16,2%	17,1%	18,0%	18,7%	20,4%	21,6%	23,4%
Other Hum.	15,6%	13,5%	13,2%	15,4%	12,7%	13,8%	14,6%	15,6%	15,3%	10,9%	9,3%	7,4%	6,9%	6,4%	7,0%

Data source: PowerHEDA SQL Report

4.7 STUDENT ENROLMENTS IN SCARCE SKILLS PROGRAMMES

CUT has undergraduate enrolments in four of the six scarce skills areas identified by the DHET: Engineering, Life and Physical Sciences, Human Health, and Teacher Education. CUT does not offer programmes in Animal Science or Veterinary Science.

Table 6 reflects the projected enrolments in the scarce skills areas.

Table 6: Undergraduate enrolments in scarce skills areas

CUT SCARCE SKILLS: UNDERGRADUATE ENROLMENTS								
	2017	Average annual increase: 2013-2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025	Average annual increase: 2017-2025
Engineering	3 881	8,6%	4 378	4 461	4 518	4 597	4 693	2,4%
Human Health	856	6,4%	1 110	1 131	1 145	1 165	1 195	4,3%
Life & Physical Sciences	593	18,1%	665	677	691	705	723	2,5%
Initial Teacher Education	3 379	13,6%	3 864	3 961	3 896	3 904	4 000	1,7%
Animal Science	0	#NUM!	0	0	0	0	0	#NUM!
Veterinary Science	0	#NUM!	0	0	0	0	0	#NUM!

Data Source: CUT Student Enrolment Plan, Tables 47a, 48a, 49a, 50a.

4.8 STUDENTS' DEMOGRAPHIC PROFILE

The gender profile of CUT's students has shifted in recent years from a majority of male students to a majority of female students. The university expects the proportion of female students to grow from 50,7% in 2017 to 52,5% in 2025, as indicated in Table 7.

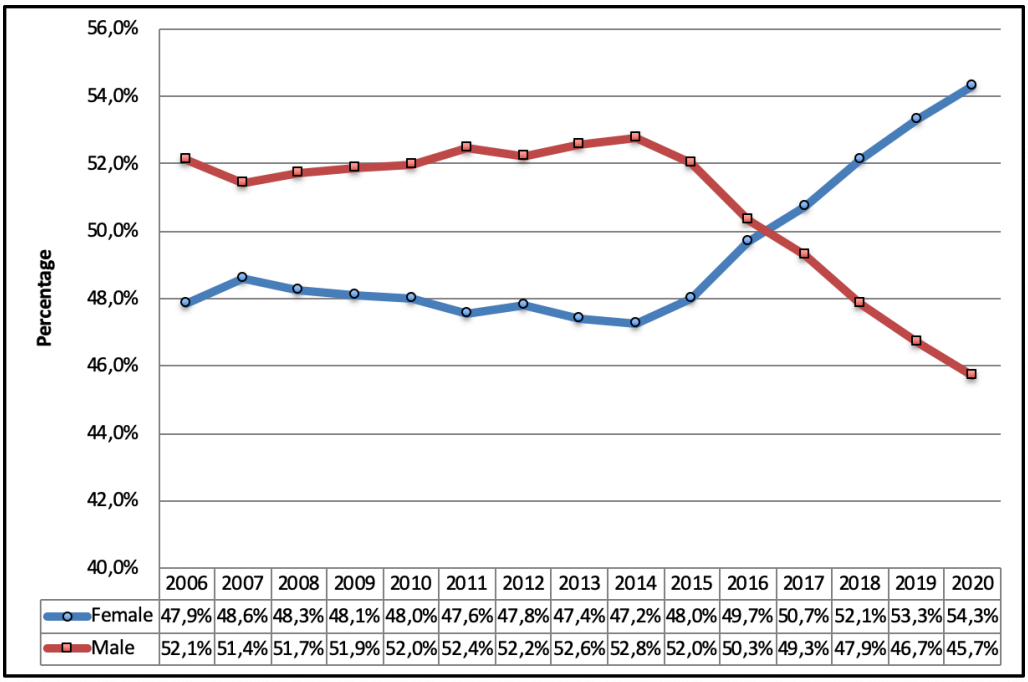
Table 7: Proportion of enrolments by gender

	Actual	Planned/expected				
	2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025
Female	50,7%	50,7%	51,2%	51,8%	52,2%	52,5%
Male	49,3%	49,3%	48,8%	48,2%	47,8%	47,5%
TOTAL	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Source: CUT Student Enrolment Plan, Table 17.

Figure 5 reflects the university's enrolments by gender, over the period 2006 to 2020. As can be seen, the target for 2025 has been exceeded in 2019 and 2020.

Figure 5: CUT enrolments by gender 2006-2020



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Female	47,9%	48,6%	48,3%	48,1%	48,0%	47,6%	47,8%	47,4%	47,2%	48,0%	49,7%	50,7%	52,1%	53,3%	54,3%
Male	52,1%	51,4%	51,7%	51,9%	52,0%	52,4%	52,2%	52,6%	52,8%	52,0%	50,3%	49,3%	47,9%	46,7%	45,7%

Data source: PowerHEDA SQL Report

With regard to population group, there has been a steady increase in the proportion of African students at CUT, and a decline in the proportion of White and Coloured students. Less than one percent of the students are Indian. The proportion of African students is projected to grow slowly during the planning period, to 94% in 2025, as shown in Table 8 below.

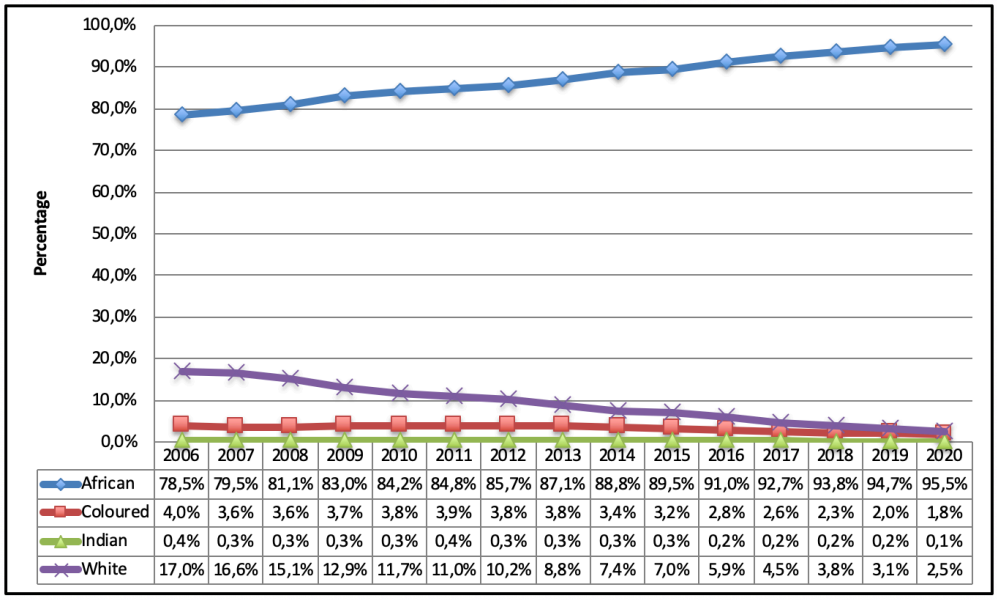
Table 8: Proportion of Enrolments by Group

	Actual	Planned/expected				
	2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025
African	92,7%	93,5%	93,7%	93,8%	93,9%	94,0%
Coloured	2,6%	2,4%	2,3%	2,3%	2,3%	2,3%
Indian	0,2%	0,4%	0,4%	0,4%	0,4%	0,4%
White	4,5%	3,7%	3,6%	3,5%	3,4%	3,4%
TOTAL	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Source: CUT Student Enrolment Plan, Table 13.

Figure 6 shows the trend in enrolments by population group, for the period 2006 to 2020. The 2025 target for African students has been exceeded in 2019 and 2020.

Figure 6: CUT enrolments by group 2006-2020



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
African	78,5%	79,5%	81,1%	83,0%	84,2%	84,8%	85,7%	87,1%	88,8%	89,5%	91,0%	92,7%	93,8%	94,7%	95,5%
Coloured	4,0%	3,6%	3,6%	3,7%	3,8%	3,9%	3,8%	3,8%	3,4%	3,2%	2,8%	2,6%	2,3%	2,0%	1,8%
Indian	0,4%	0,3%	0,3%	0,3%	0,3%	0,4%	0,3%	0,3%	0,3%	0,3%	0,2%	0,2%	0,2%	0,2%	0,1%
White	17,0%	16,6%	15,1%	12,9%	11,7%	11,0%	10,2%	8,8%	7,4%	7,0%	5,9%	4,5%	3,8%	3,1%	2,5%

Data source: PowerHEDA SQL Report

4.9 INTERNATIONAL STUDENTS

Most of CUT's international students are from countries in the Southern African Development Community (SADC). Not surprisingly, given its location, most of the university's international students have come from Lesotho, followed by Zimbabwe, Namibia, and Botswana.

The projected student numbers for South African and international students are shown in Table 9 below. The total number of 496 international students in 2017 (SADC and other, undergraduate and postgraduate) represented 2,7% of the total enrolment. The projected total of 1 413 in 2025 makes up 6,1% of the total in that year.

Table 9: International student enrolments

	Actual	Planned/expected				
	2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025
South African Undergraduate	16 519	16 368	16 456	16 904	17 332	17 864
SADC Undergraduate	392	523	613	710	813	909
Other Foreign Undergraduate	18	102	136	173	212	254
TOTAL UNDERGRADUATE	**16 929**	**16 993**	**17 205**	**17 787**	**18 357**	**19 027**
South African Post-graduate	1 052	1 954	2 571	3 114	3 509	3 801
SADC Post-graduate	53	100	125	140	160	175
Other Foreign Post-graduate	33	51	57	62	65	75
TOTAL POST-GRADUATE	**1 138**	**2 105**	**2 753**	**3 316**	**3 734**	**4 051**
TOTAL	**18 067**	**19 098**	**19 958**	**21 103**	**22 091**	**23 078**

Source: CUT Student Enrolment Plan, Table 46.

4.10 TOTAL HEADCOUNT RATIOS

CUT expects an increase in the proportion of postgraduate students in the planning period, rising from 6,3% of total enrolments in 2017 to 17,6% by 2025. As can be seen in Table 10, a corresponding decline in the proportion of undergraduate students is projected.

A decline is expected in the proportion of first-time entering undergraduate students (FU), from 29,5% of total enrolments in 2017 to 25,3% in 2025. No enrolments of occasional students are projected for the planning period.

Table 10: Total headcount ratios

	Actual	Planned/expected				
	2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025
FU as % of total undergrads	29,5%	27,3%	27,2%	26,5%	25,8%	25,3%
Undergrads as % of total	93,1%	89,0%	86,2%	84,3%	83,1%	82,4%
Postgrads as % of total	6,3%	11,0%	13,8%	15,7%	16,9%	17,6%
Occasional as % of total	0,6%	0,0%	0,0%	0,0%	0,0%	0,0%

Source: CUT Student Enrolment Plan, Table 2.

4.11 STUDENT FULL-TIME EQUIVALENTS

Under the DHET's Higher Education Management Information System (HEMIS), students are counted as headcounts and as full-time equivalent students. Every student who enrols in a particular year is counted as one headcount. However, not every student who enrols is taking the same load of subjects in a particular year. A student who is taking a full load of subjects is also counted as one full-time equivalent student (or FTE), but students who are taking less than a full load of subjects are counted as a fraction of one FTE, depending on the subjects taken.

The FTE count is meant to reflect the comparative resources that the university will require to teach different students, and it forms the basis of the DHET's allocation of subsidy to the universities.

The total number of FTE students will always be less than the total number of headcounts, given that many students do not carry a full load of subjects every year. Table 11 below shows the ratio

of FTE enrolments to headcount enrolments in 2017, and the projected ratio for the planning period.

Table 11: Ratio of FTEs to headcount enrolments

	Actual	Planned/expected				
	2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025
Total undergraduate	**54,6%**	**85,9%**	**85,7%**	**84,8%**	**84,2%**	**83,5%**
Postgraduate to masters level	29,1%	89,1%	82,6%	73,5%	69,2%	66,0%
Masters	45,5%	32,1%	32,0%	32,1%	32,2%	46,7%
Doctors	49,0%	46,8%	47,1%	47,4%	47,8%	48,0%
Total postgraduate	**37,3%**	**73,1%**	**71,0%**	**65,2%**	**62,5%**	**62,2%**
TOTAL ENROLMENT	**75,1%**	**84,5%**	**83,7%**	**81,7%**	**80,5%**	**79,7%**

Source: CUT Student Enrolment Plan, Table 21.

The proportion of FTE students according to the major field of study is shown in Table 12. The table reflects an increase in the proportion of SET enrolments from 44,8% in 2017 to 51,6% in 2025.

The proportions in this table differs slightly from the headcount proportions in Table 5 above, as they are calculated on the field of study of the individual subjects taken by students.

Table 12: Student FTEs by major field of study

	Actual	Planned/expected				
	2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025
Science, engineering, technology	44,8%	51,5%	51,2%	51,1%	51,1%	51,6%
Business/management	21,2%	20,1%	20,7%	22,1%	22,3%	22,4%
Education	23,2%	20,6%	20,9%	20,2%	20,1%	19,7%
Other humanities	10,7%	7,9%	7,1%	6,6%	6,4%	6,3%
TOTAL	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Source: CUT Student Enrolment Plan, Table 22.

5. STUDENT SUCCESS TARGETS

5.1 INTRODUCTION

South Africa's universities have been characterised in the National Development Plan (NDP) as "mid-level performers in terms of knowledge production, with low participation, high attrition rates, and insufficient capacity to produce the required levels of skills" (NPC 2012:317).

It is not enough for the universities to increase access to Higher Education if the attrition rates remain high, with many young people passing through a "revolving door" and leaving without a qualification.

Three measures of student success are considered in this section: the pass rate (or degree credit success rate), graduates, and throughput (or the rate at which students graduate). Specific targets are set for the pass rate and the number of graduates in the Student Enrolment Plan and incorporated here.

5.2 STUDENT PASS RATES

The pass rates of university students are calculated on the basis of FTEs, or full-time equivalents. The degree credit values (always a fraction of one) for every subject taken by students in a particular year are calculated and compared to the credit values of all the subjects passed.

The planned pass rates (or degree credit success rates) for all CUT students are shown in Table 13, for 2021-2025, according to qualification type.

Table 13: Total success rates by course level

	Planned/expected				
	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025
Total undergraduate	**79,1%**	**79,1%**	**79,0%**	**79,1%**	**79,3%**
Postgraduate to masters level	82,6%	81,9%	81,9%	82,0%	82,1%
Masters	56,9%	57,0%	57,8%	57,7%	57,5%
Doctors	58,4%	59,0%	59,3%	60,6%	61,3%
Total postgraduate	**78,7%**	**78,7%**	**78,9%**	**79,1%**	**78,5%**
TOTAL	**79,0%**	**79,1%**	**79,0%**	**79,1%**	**79,2%**

Source: CUT Student Enrolment Plan, Table 33.

Table 14 below shows the overall pass rate projections for the different major areas of study.

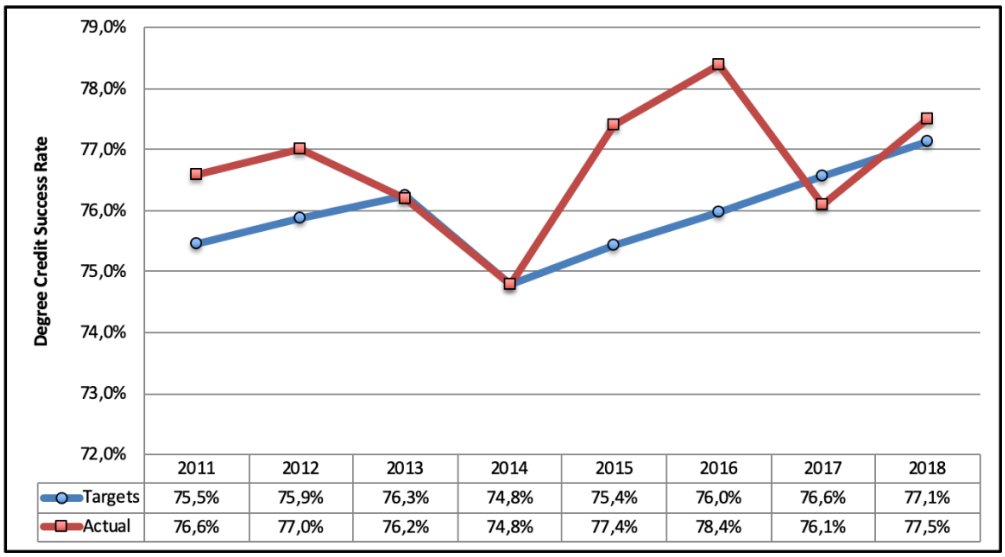
Table 14: Total success rates by field of study

	Actual	Planned/expected				
	2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025
Science, engineering, technology	72,0%	74,2%	74,4%	74,4%	74,5%	74,6%
Business/management	80,1%	80,0%	79,6%	79,7%	80,0%	80,2%
Education	84,9%	87,1%	87,3%	87,1%	87,0%	87,3%
Other humanities	83,2%	86,9%	87,1%	87,4%	87,6%	87,8%
TOTAL	**77,9%**	**79,0%**	**79,1%**	**79,0%**	**79,1%**	**79,2%**

Source: CUT Student Enrolment Plan, Table 34.

Figure 7 shows the pass rate for CUT's undergraduate students only, for the period 2011 to 2018, compared with the university's targets.

Figure 7: CUT undergraduate pass rate and targets, 2011-2018



Data source: Student Enrolment Plan and PowerHEDA Peer Data Report

5.3 GRADUATES

CUT is projecting an average annual increase of 6,9% in the number of graduates between 2017 and 2025, compared with an annual increase of 4,4% in the period 2013 to 2017. Large percentage increases are expected for the categories Advanced Diplomas/PGCE (45,1% a year on average) and Postgraduate to Master's (20,5% a year), where new qualifications are being introduced. An increase of 20,2% a year is projected for Doctoral graduates, from a low base.

Table 15 shows the projected number of graduates, according to qualification type. (There is no calculation of the average annual increase in Advanced Diplomas/PGCE between 2013 and 2017, as the Advanced Diplomas were not yet introduced in 2013.)

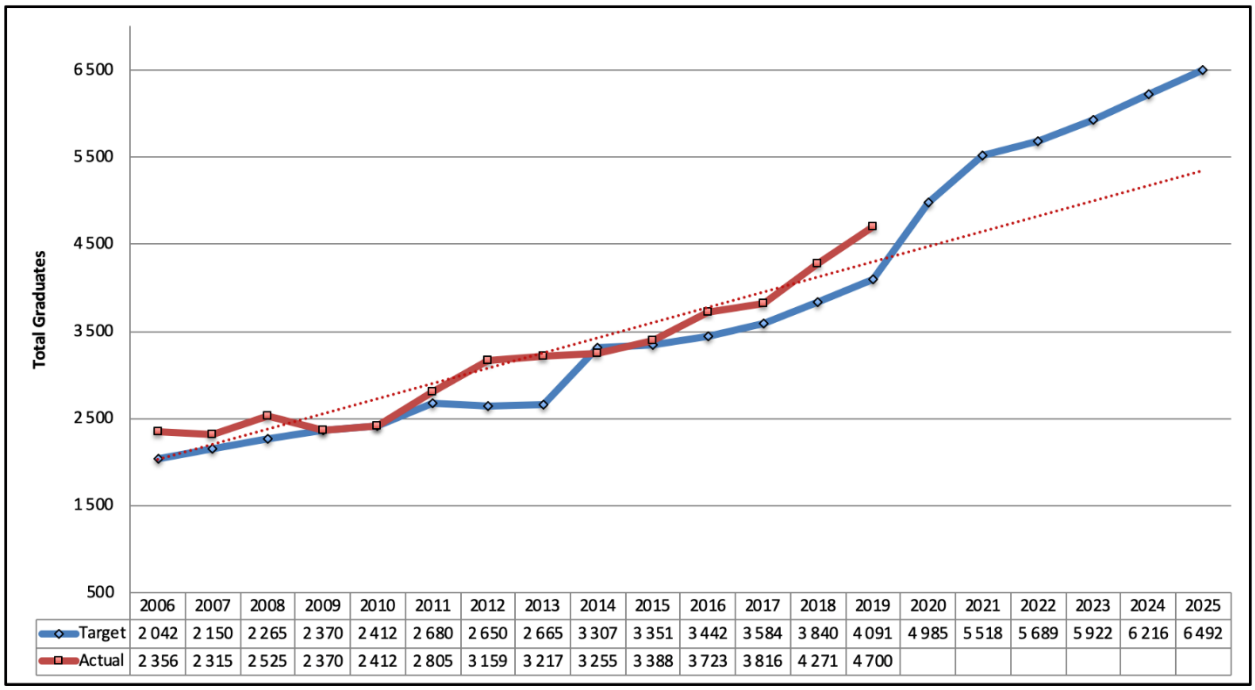
Table 15: Graduates by qualification type

	Actual		Planned/expected					
	2017	Average annual increase: 2013-2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025	Average annual increase: 2017-2025
Undergraduate diplomas	1 737	2,0%	2 718	2 499	2 371	2 396	2 434	4,3%
Advanced diploma/PGCE	65	#NUM!	684	970	1 112	1 210	1 279	45,1%
Undergraduate degrees	1 651	8,8%	1 105	1 004	1 073	1 111	1 201	-3,9%
Total undergraduate	**3 453**	**5,5%**	**4 507**	**4 473**	**4 556**	**4 717**	**4 914**	**4,5%**
Postgraduate to masters level	295	-6,3%	815	994	1 124	1 244	1 314	20,5%
Masters	48	6,7%	138	154	164	173	177	17,7%
Doctors	20	13,6%	58	68	78	82	87	20,2%
TOTAL	**3 816**	**4,4%**	**5 518**	**5 689**	**5 922**	**6 216**	**6 492**	**6,9%**

Source: CUT Student Enrolment Plan, Table 35.

Figure 8 shows the number of graduates per year for the years 2006 to 2019, compared to the university's targets, with projections to 2025.

Figure 8: CUT graduates 2006-2019 and targets 2006-2025

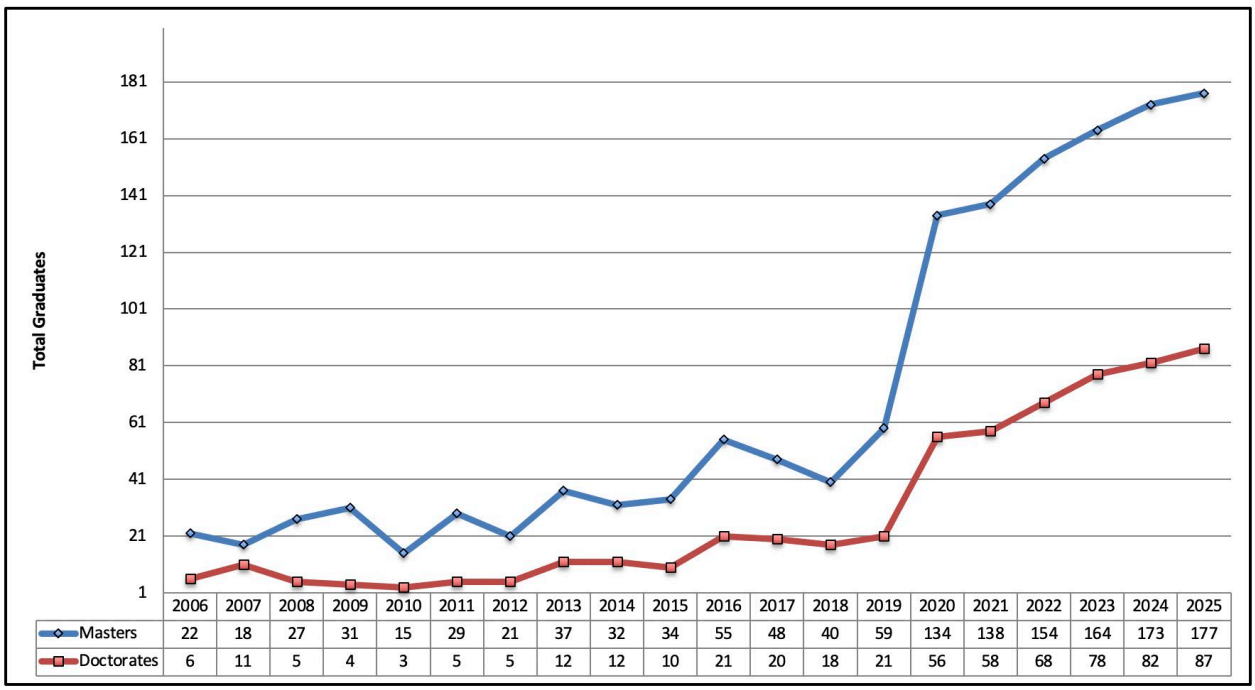


	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Target	2 042	2 150	2 265	2 370	2 412	2 680	2 650	2 665	3 307	3 351	3 442	3 584	3 840	4 091	4 985	5 518	5 689	5 922	6 216	6 492
Actual	2 356	2 315	2 525	2 370	2 412	2 805	3 159	3 217	3 255	3 388	3 723	3 816	4 271	4 700						

Data source: CUT Student Enrolment Plans and PowerHEDA Cube Report

The increase in Master's and Doctoral graduates between 2006 and 2019 is shown in Figure 9 below. The graph includes the university's projections for 2020 to 2025.

Figure 9: CUT Master's and Doctoral graduates 2006-2019 and targets 2020-2025



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Masters	22	18	27	31	15	29	21	37	32	34	55	48	40	59	134	138	154	164	173	177
Doctorates	6	11	5	4	3	5	5	12	12	10	21	20	18	21	56	58	68	78	82	87

Data source: CUT Student Enrolment Plan and HEDA PDS Cube Report

The planned graduates according to major area of study are shown in Table 16. The highest average annual increase of 8,0% a year is projected in Science, Engineering and Technology, followed by Business and Management at 7,5% a year.

Table 16: Graduates by field of study

	Actual		Planned/expected					
	2017	Average annual increase: 2013-2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025	Average annual increase: 2017-2025
Science, engineering, technology	1 670	7,9%	2 775	2 779	2 832	2 941	3 083	8,0%
Business/management	918	0,8%	1 209	1 205	1 393	1 547	1 633	7,5%
Education	828	4,7%	999	1 167	1 143	1 162	1 196	4,7%
Other humanities	400	-0,5%	536	538	554	566	580	4,8%
TOTAL	**3 816**	**4,4%**	**5 518**	**5 689**	**5 922**	**6 216**	**6 492**	**6,9%**

Source: CUT Student Enrolment Plan, Table 36.

5.4 THROUGHPUT RATES

Although throughput rates (or the rate at which the university's students successfully graduate) are not part of the Student Enrolment Plan, they represent a crucial measure of universities' performance that is receiving increasing attention from the Department of Higher Education and Training.

Cohort studies conducted by the DHET show a steady increase in the national average throughput rate, between the cohort years of 2000 and 2015. The throughput rate in the minimum time of South African first-time entering undergraduate students in three-year Diploma qualifications, by contact mode of tuition, increased from 16,8% for the cohort of 2000 to 26,2% for the 2015 cohort (DHET 2019a:20).

The throughput rate for such students at CUT declined from 27,8% for the 2006 cohort to 23,0% for the 2007 cohort and has hovered between 19% and 24% since then.

Table 17 reflects the throughput rate in the minimum time of CUT's first-time entering South African undergraduates in three-year diplomas for the cohort years of 2006 to 2015, by faculty and the university as a whole.

Table 17: Throughput rates in the minimum time for three-year diploma students

Faculty ► Department ► Qualification Type ► Tracking Cluster	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
FEBIT	10.56%	10.87%	11.46%	10.51%	10.53%	11.82%	5.02%	6.27%	10.42%	9.61%
HEALTH&ENVIRONMENTAL SCIENCES	50.57%	28.90%	38.07%	37.90%	43.72%	43.07%	34.84%	39.10%	28.03%	28.74%
HUMANITIES	42.86%	33.54%	28.24%	20.86%	28.08%	20.99%	26.14%	25.75%	31.68%	31.03%
MANAGEMENT SCIENCES	39.47%	35.74%	30.07%	29.34%	32.65%	30.06%	31.03%	38.29%	35.90%	34.80%
Total Throughput Rate	**27.77%**	**23.00%**	**22.17%**	**21.00%**	**24.05%**	**23.40%**	**19.20%**	**22.36%**	**21.86%**	**21.15%**

Source: CUT PowerHEDA SQL report.

6. STAFF TARGETS

6.1 INTRODUCTION

In order for the university to deliver on its mandate and achieve its goals, it needs to be properly resourced. This includes having sufficient, well-qualified staff – both academic and support staff.

In this section, CUT's targets in relation to its staff complement are set out, in terms of headcounts and full-time equivalents. With regard to permanent academic staff members, targets relating to their highest qualification and research outputs are given.

6.2 STAFF HEADCOUNTS

CUT is projecting an increase in staff numbers of 2,2% a year on average between 2017 and 2025, compared with an annual increase of 2,4% a year for 2013 to 2017.

The highest average increase of 7,8% is predicted for the category of Service Staff, where some insourcing of services is taking place. A 7,2% a year increase in the number of Crafts/Trade Staff is projected, from a low base. An increase of 1,9% a year is planned for Instruction/Research Staff (Academic Staff), compared with an average annual increase of 1,2% in the period 2013-2017.

The projected headcounts of permanent staff according to personnel category are shown in Table 18 below.

Table 18: Permanent staff headcounts by staff category

	Actual		Planned/expected					
	2017	Average annual increase: 2013-2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025	Average annual increase: 2017-2025
Instruction/research professionals	305	1,2%	324	331	338	347	355	1,9%
Executive/management professionals	49	-2,4%	50	50	50	50	51	0,5%
Support professionals	87	3,4%	88	89	90	91	91	0,6%
Total professional staff	**441**	**1,2%**	**462**	**470**	**478**	**488**	**497**	**1,5%**
Technical staff	45	6,5%	47	49	49	50	50	1,3%
Non-professional administrative staff	228	7,6%	239	240	241	242	243	0,8%
Crafts/trades staff	8	3,4%	10	11	12	13	14	7,2%
Service staff	81	-4,7%	146	146	147	147	148	7,8%
Total non-professional staff	**362**	**4,0%**	**442**	**446**	**449**	**452**	**455**	**2,9%**
TOTAL PERMANENT STAFF	**803**	**2,4%**	**904**	**916**	**927**	**940**	**952**	**2,2%**

Source: CUT Student Enrolment Plan, Table 38.

CUT's human resources are calculated as headcounts, but also as full-time equivalents (FTEs). The resources available to the university include temporary or part-time staff members, as well as the permanently appointed staff. An FTE count of staff takes into account the proportion of a full working year that all staff, permanent and temporary, are available to the institution. This results in the staff FTE count, shown in Table 19 below, being higher than the number of permanently appointed staff members, as indicated in Table 18 above.

Table 19: Full-time equivalent staff by staff category

	Actual		Planned/expected					
	2017	Average annual increase: 2013-2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025	Average annual increase: 2017-2025
Instruction/research professionals	362	-1,0%	368	374	379	388	396	1,1%
Executive/management professionals	44	-2,5%	46	46	46	46	47	0,6%
Support professionals	88	0,2%	101	102	103	104	104	2,2%
Total professional staff	**494**	**-0,9%**	**515**	**522**	**528**	**538**	**547**	**1,3%**
Technical staff	58	4,5%	64	67	67	68	68	2,1%
Non-professional administrative staff	405	7,9%	478	480	482	484	486	2,3%
Crafts/trades staff	8	2,6%	10	11	12	13	14	7,7%
Service staff	182	3,1%	266	266	268	268	270	5,1%
Total non-professional staff	**652**	**6,1%**	**819**	**824**	**829**	**833**	**838**	**3,2%**
TOTAL PERMANENT STAFF	**1 146**	**2,8%**	**1 333**	**1 346**	**1 357**	**1 371**	**1 385**	**2,4%**

Source: CUT Student Enrolment Plan, Table 39.

With FTE values for students and academic staff, it is possible to calculate an average ratio of FTE students to FTE academic staff. This is often considered an indication of the efficiency of a university. Table 20 shows a predicted increase in the ratio, from 37,8:1 in 2017 to 46,5:1 in 2025. The provisional ratio for 2019 was 39,3:1. Strategies have been developed to address this increased ratio.

Table 20: Ratio of FTE students to FTE academic staff

	Actual	Planned/expected				
	2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025
Total FTE enrolled students	13 663	16 142	16 699	17 238	17 791	18 402
FTE instruction/research staff	362	368	374	379	388	396
Ratio of FTE students to FTE instruction research staff	**37,8**	**43,9**	**44,6**	**45,5**	**45,9**	**46,5**

Source: CUT Student Enrolment Plan, Table 45.

6.3 ACADEMIC STAFF QUALIFICATIONS

Like all universities of technology, CUT comes from a Technikon background in which there was not the same priority given to research and postgraduate studies as there is now. If a university plans to increase the number of its Master's and Doctoral students, it must have enough suitably qualified academic staff members to supervise the students at those levels.

CUT's targets for increasing the number of its permanent academic staff with a Master's or Doctoral degree as highest qualification are shown in Table 21. The projected rates of increase from 2017 to 2025 are lower than the rates in the period 2013 to 2017, at an average annual increase of 2,8% for Doctorates (previously 6,5%) and 2,2% a year for Master's (previously 6,0%).

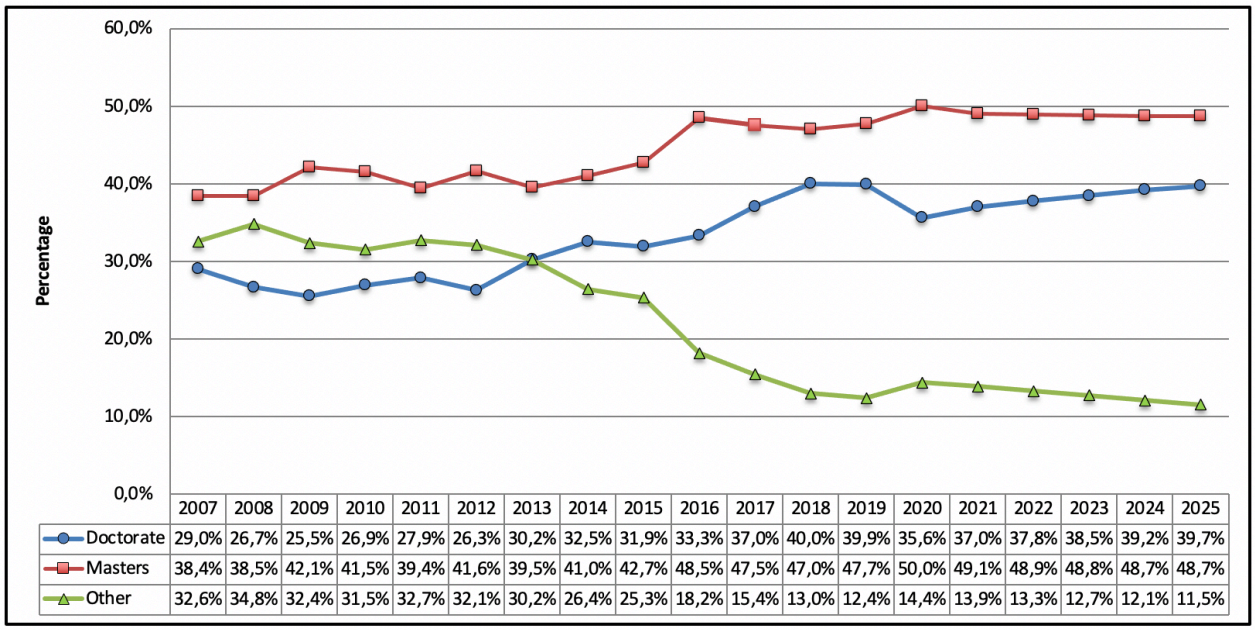
Table 21: Highest qualification of permanent academic staff

	Actual		Planned/expected					
	2017	Average annual increase: 2013-2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025	Average annual increase: 2017-2025
Doctoral degree	113	6,5%	120	125	130	136	141	2,8%
Masters degree	145	6,0%	159	162	165	169	173	2,2%
Other	47	-14,5%	45	44	43	42	41	-1,7%
TOTAL	**305**	**1,2%**	**324**	**331**	**338**	**347**	**355**	**1,9%**

Source: CUT Student Enrolment Plan, Table 41.

Figure 10 below reflects the proportions of permanent academic staff with a Master's or Doctorate as highest qualification from 2007 to 2019, with the projections for 2020 to 2025. The proportion of academic staff with some other qualification is expected to decline as the proportion with a Master's or Doctorate degree increases.

Figure 10: CUT proportions of permanent academic staff qualifications 2007-2019 and targets 2020-2025



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Doctorate	29,0%	26,7%	25,5%	26,9%	27,9%	26,3%	30,2%	32,5%	31,9%	33,3%	37,0%	40,0%	39,9%	35,6%	37,0%	37,8%	38,5%	39,2%	39,7%
Masters	38,4%	38,5%	42,1%	41,5%	39,4%	41,6%	39,5%	41,0%	42,7%	48,5%	47,5%	47,0%	47,7%	50,0%	49,1%	48,9%	48,8%	48,7%	48,7%
Other	32,6%	34,8%	32,4%	31,5%	32,7%	32,1%	30,2%	26,4%	25,3%	18,2%	15,4%	13,0%	12,4%	14,4%	13,9%	13,3%	12,7%	12,1%	11,5%

Data source: CUT Student Enrolment Plan and HEDA PDS Cube Report

6.4 RESEARCH

The Department of Higher Education and Training allocates research output units to universities based upon their publications in accredited journals, books, and conference proceedings, and the number of their Research Master's and Doctoral graduates. A single Doctoral graduate is weighted at 3 units for subsidy purposes.

CUT's projected research outputs for the planning period are shown in Table 22 below. An 8,0% average annual growth in publication units is predicted, compared to 15,7% a year on average between 2013 and 2017. Higher growth is expected in the number of Research Master's graduates (17,7% a year, compared to 7,1% previously) and Doctoral graduates (20,2% compared to 13,6% previously).

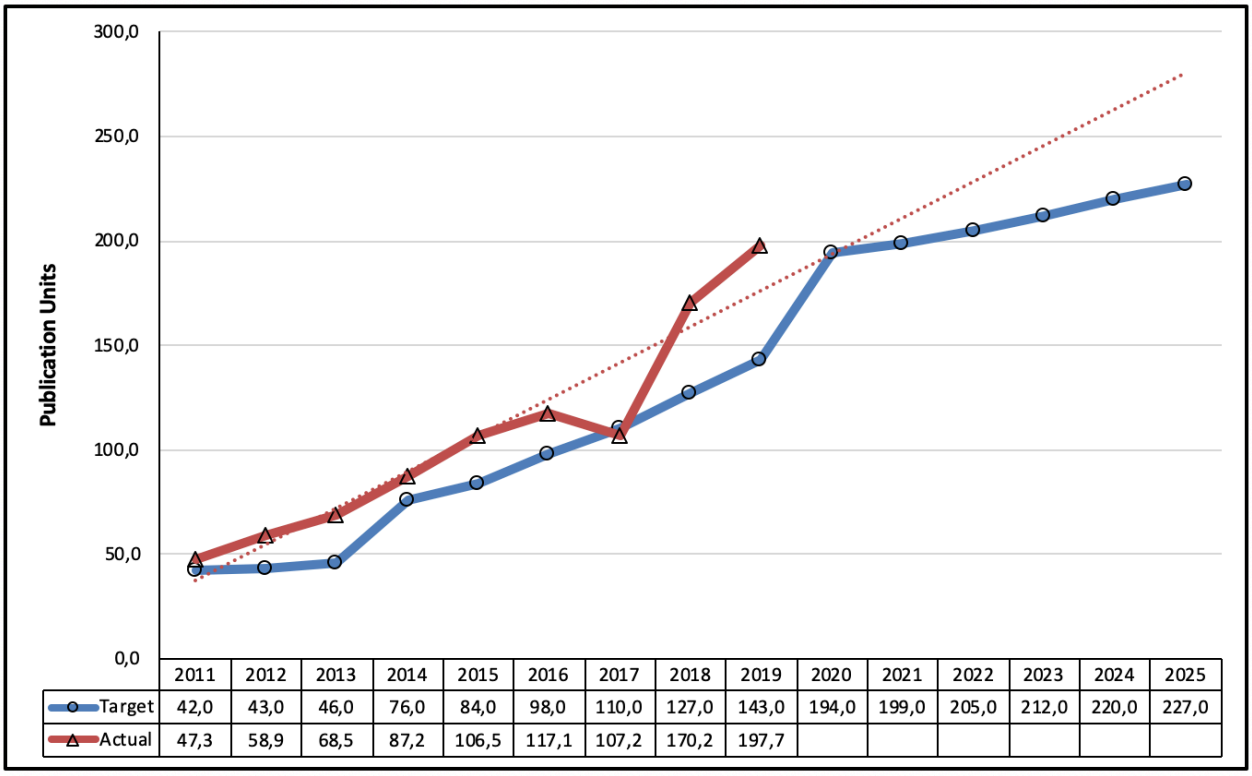
Table 22: Research outputs

	Actual		Planned/expected					
	2017	Average annual increase: 2013-2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025	Average annual increase: 2017-2025
Publication units	123	15,7%	199	205	212	220	227	8,0%
Research masters graduates	48	7,1%	138	154	164	173	177	17,7%
Doctoral graduates	20	13,6%	58	68	78	82	87	20,2%
WEIGHTED TOTAL	**231**	**13,1%**	**511**	**563**	**610**	**639**	**665**	**14,2%**

Source: CUT Student Enrolment Plan, Table 43.

The growth in CUT's publication units only, compared to its targets for the period 2011 to 2019, and projections for 2011 to 2025, is shown in Figure 11. The total for 2019 is provisional.

Figure 11: CUT publication units 2011-2019 and targets for 2011-2025



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Target	42,0	43,0	46,0	76,0	84,0	98,0	110,0	127,0	143,0	194,0	199,0	205,0	212,0	220,0	227,0
Actual	47,3	58,9	68,5	87,2	106,5	117,1	107,2	170,2	197,7						

Data source: CUT Student Enrolment Plans and DHET Annual Research Reports for 2017 (DHET 2019b:34) & 2018 (DHET 2020b:22). Data for 2019 is provisional.

The Department of Higher Education and Training expects Universities of Technology to produce on average 1,1 research outputs per permanently employed academic staff member. Table 23 below shows that CUT produced 0,75 units per staff member in 2017 (expressed as a percentage in the table). The average for 2018 rose to 0,88. The university is projecting an increase in the ratio to 1,87 units per academic staff member by 2025.

Table 23: Ratio of research outputs to permanent academic staff

	Actual	Planned/expected				
	2017	Proposed target 2021	Proposed target 2022	Proposed target 2023	Proposed target 2024	Proposed target 2025
Publication units	40,2%	61,4%	61,9%	62,7%	63,4%	63,9%
Research masters graduates	15,7%	42,6%	46,5%	48,5%	49,9%	49,9%
Doctoral graduates	6,6%	17,9%	20,5%	23,1%	23,6%	24,5%
WEIGHTED TOTAL	**75,6%**	**157,7%**	**170,1%**	**180,5%**	**184,1%**	**187,3%**

Source: CUT Student Enrolment Plan, Table 44.

7. SUMMARY TABLES

7.1 INTRODUCTION

The targets set out in the previous sections are consolidated into summary tables in the following pages. Following guidelines provided by the DHET for the presentation of Annual Performance Plans, the targets are arranged in the following four groups:

- Access
- Success
- Efficiency
- Research

7.2 ACCESS

Table 24: Summary table: access

		Actual			Provisional	Projected				
		2016	2017	2018	2019	2021	2022	2023	2024	2025
Student Enrolments	Total Headcount	15 708	18 185	19 464	21 225	19 098	19 958	21 103	22 091	23 078
	First-Time Entering Undergraduates	4 316	4 995	4 214	4 434	4 644	4 677	4 718	4 740	4 808
	Foundation First-Year Intake	368	418	284	368	725	775	820	834	852
	Total Contact Mode	15 683	18 185	19 464	21 225	18 998	19 568	20 073	20 534	21 143
	Total Distance Mode	25	0	0	0	100	390	1 030	1 557	1 935
	Total Undergraduate	14 576	16 929	18 222	19 903	16 993	17 205	17 787	18 357	19 027
	Total Postgraduate	1 102	1 138	1 176	1 256	2 106	2 753	3 316	3 734	4 051
	Occasional	30	118	66	66	0	0	0	0	0
Total Enrolments by Major Area of Study	Science, Engineering, Tech.	7 660	8 897	9 724	10 386	9 427	9 610	9 781	10 036	10 362
	Business / Management	3 750	4 533	4 426	4 879	3 857	4 050	4 406	4 518	4 642
	Education	2 830	3 405	3 966	4 565	4 104	4 206	4 150	4 207	4 309
	Other Humanities	1 468	1 351	1 348	1 394	1 610	1 702	1 736	1 772	1 830
Undergraduate Scarce Skills Enrolments	Engineering, UG	3 192	3 881	4 274	4 064	4 378	4 461	4 518	4 597	4 693
	Human Health , UG	835	856	948	1 070	1 110	1 131	1 145	1 165	1 195
	Life & Physical Sciences, UG	508	593	662	661	665	677	691	705	723
	Teacher Education, UG (BEd)	3 023	3 379	3 812	4 472	3 492	3 583	3 533	3 550	3 646
Demographic Profile	% Female Students	49,7%	50,7%	52,1%	53,3%	50,7%	51,2%	51,8%	52,2%	52,5%
	% Male Students	50,3%	49,3%	47,9%	46,7%	49,3%	48,8%	48,2%	47,8%	47,5%
	% African Students	91,0%	92,7%	93,8%	94,7%	93,5%	93,7%	93,8%	93,9%	94,0%
	% Coloured Students	2,8%	2,6%	2,3%	2,0%	2,4%	2,3%	2,3%	2,3%	2,3%
	% Indian Students	0,2%	0,2%	0,2%	0,2%	0,4%	0,4%	0,4%	0,4%	0,4%
	% White Students	5,9%	4,5%	3,8%	3,1%	3,7%	3,6%	3,5%	3,4%	3,4%

7.3 SUCCESS

Table 25: Summary table: success

		Actual			Provisional	Projected				
		2016	2017	2018	2019	2021	2022	2023	2024	2025
Graduates	Total Graduates	3 723	3 816	4 271	4 700	5 518	5 689	5 922	6 216	6 492
	Graduates Contact Mode	3 706	3 816	4 271	4 700	5 518	5 659	5 822	5 966	6 172
	Graduates Distance Mode	17	0	0	0	0	30	100	250	320
	Graduates UG	3 254	3 453	3 912	4 204	4 507	4 473	4 556	4 717	4 914
	Graduates PG	469	363	359	496	1 011	1 216	1 366	1 499	1 578
Pass Rate	Overall Degree Credit Success Rate	78,6%	77,9%	78,1%	75,1%	79,0%	79,1%	79,0%	79,1%	79,2%
	Contact Degree Credit Success Rate	78,6%	77,9%	78,1%	75,1%	79,0%	79,2%	79,2%	79,3%	79,4%
	Distance Degree Credit Success Rate	89,5%	n/a	n/a	n/a	67,0%	66,0%	70,9%	72,1%	72,4%
	UG Degree Credit Success Rate	78,4%	76,1%	77,5%	75,7%	79,1%	79,1%	79,0%	79,1%	79,3%
	PG Degree Credit Success Rate	82,0%	73,4%	59,6%	64,0%	78,7%	78,7%	78,9%	79,1%	78,5%
Pass Rate by Field of Study	Science, Engineering, Technology	74,7%	72,0%	74,6%	74,3%	74,2%	74,4%	74,4%	74,5%	74,6%
	Business / Management	75,4%	80,1%	77,8%	72,6%	80,0%	79,6%	79,7%	80,0%	80,2%
	Education	87,4%	84,9%	81,3%	77,7%	87,1%	87,3%	87,1%	87,0%	87,3%
	Other Humanities	80,9%	83,2%	85,7%	76,6%	86,9%	87,1%	87,4%	87,6%	87,8%
Undergraduate Scarce Skills Outputs	Engineering UG	679	698	1 078	1 033	1 248	1 272	1 288	1 311	1 338
	Human Health UG	258	282	324	321	325	332	336	342	350
	Life & Physical Sciences UG	83	100	152	134	110	112	116	118	122
	Teacher Education UG (BEd)	449	533	400	606	510	549	542	540	572

7.4 EFFICIENCY

Table 26: Summary table: efficiency

		Actual			Provisional	Projected				
		2016	2017	2018	2019	2021	2022	2023	2024	2025
Instruction / Research Staff	Headcount of Permanent I/R Staff	297	305	300	306	324	331	338	347	355
	FTE Instruction / Research Staff	483	362	380	396	368	374	379	388	396
	% Perm. I/R Staff with Doctoral Degree	33,3%	34,4%	40,0%	39,6%	37,0%	37,8%	38,5%	39,2%	39,7%
	% Perm. I/R Staff with Masters Degree	48,5%	48,5%	47,0%	48,0%	49,1%	48,9%	48,8%	48,7%	48,7%
	% Perm I/R Staff with Other Qualification	18,2%	17,1%	13,0%	12,4%	13,9%	13,3%	12,7%	12,1%	11,5%
	Number of NGap Staff	4	7	11	12					
	Ratio of FTE Students to FTE I/R Staff	25,6	37,8	39,7	39,3	40,5	40,4	40,4	40,6	41,0

7.5 RESEARCH

Table 27: Summary table: research

		Actual			Provisional	Projected				
		2016	2017	2018	2019	2021	2022	2023	2024	2025
Research Outputs	Publication Units	117	107	170	198	199	205	212	220	227
	Publication Units per Permanent I/R Staff	0,39	0,40	0,57	0,65	0,61	0,62	0,63	0,63	0,64
	Masters Graduates	55	48	40	59	138	154	164	173	177
	Doctoral Graduates (Unweighted)	21	20	18	21	58	68	78	82	87
	Total Weighted Research Units	235	231	264	320	511	563	610	639	665
	Weighted Research Units per Perm. I/R Staff	0,79	0,76	0,88	1,04	1,58	1,70	1,80	1,84	1,87

8. INSTITUTIONAL STRATEGIC INITIATIVES

8.1 INTRODUCTION

In the development of its Vision statement for 2030, CUT undertook an extensive consultation process which included two broadly based management and stakeholder Lekgotlas in November 2019 and March 2020. A situational analysis of the university was developed, which informed the later deliberations.

The March Lekgotla was held shortly before the nationwide shutdown imposed by Government to slow the spread of the coronavirus. Subsequently, the consultation process continued, including an online planning workshop of the university Council on 20 June 2020, and online meetings of the Extended Management Committee on 31 July and 8 October 2020.

The consultation process resulted in the aspirational statement that CUT, by 2030, should be *a leading African University of Technology, shaping the future through innovation*. It also produced the following strategic goals:

- To create a harmonious community conducive to teaching and learning.
- To produce work-ready, entrepreneurial and holistic graduates.
- To develop a strong culture of research and innovation.
- To attract, develop and retain staff as the university's most important asset.
- To build strategic partnerships that contribute to the achievement of the university's goals.
- To ensure institutional sustainability, expand streams of income, and enhance the CUT brand.
- To promote good governance, human rights and social justice.

For each of these goals, the university's various divisions identified objectives to assist in realising the goal. Key performance indicators and targets were provided to facilitate the management, monitoring, and review of the initiatives.

The institutional initiatives are reflected in Table 28 below.

Table 28: Institutional strategic initiatives

Strategic Goal	Strategic Objective	Key Performance Indicator	Baseline 2019	Five-Year Targets				
				2021	2022	2023	2024	2025
S1. To create a harmonious community conducive to teaching and learning	S1.1 Provide a safe environment for employees, students and visitors.	S1.1.1 Equip all required buildings and venues with cameras in response to the proper security standard.	8 residences 10 buildings 3 entrances	15 buildings 6 entrances	10 buildings 3 entrances	10 buildings	Maintenance and upgrading where required, as per the Maintenance Plan.	Maintenance and upgrading where required, as per the Maintenance Plan.
		S1.1.2 Provide access control in all identified areas where controlled access is required.	5 entrances 8 residences 2 buildings	5 buildings 6 entrances	4 buildings 3 entrances	Maintenance and upgrading where required, as per the Maintenance Plan.	Maintenance and upgrading where required, as per the Maintenance Plan.	Maintenance and upgrading where required, as per the maintenance plan.
	S1.2 Promote organisational well-being by providing a vibrant and healthy environment.	S1.2.1 Provide student-centred psycho-social support and services, focusing on the five Wellness Principles: psychological, emotional, intellectual, physical, and financial.	40 workshops/ events	44 workshops / events – based on 5 Wellness Dimensions & GBV awareness. 10% of CUT FM on wellness content.	45 workshops / events – based on 5 Wellness Dimensions & GBV awareness. 20% of CUT FM on wellness content.	46 workshops / events – based on 5 Wellness Dimensions & GBV awareness. 30% of CUT FM on wellness content.	46 workshops / events – based on 5 Wellness Dimensions & GBV awareness. 30% of CUT FM on wellness content.	47 workshops / events – based on 5 Wellness Dimensions & GBV awareness. 30% of CUT FM on wellness content.

Strategic Goal	Strategic Objective	Key Performance Indicator	Baseline 2019	Five-Year Targets				
				2021	2022	2023	2024	2025
	S1.3 Create a harmonious community based upon ubuntu.	S1.3.1 Effective implementation of Social Change Model of Leadership (SCM) to enhance student leadership and governance.	.	2 training and development sessions on leadership efficacy. 50% level of achievement on leadership assessment tool developed from Socially Responsible Leadership Scale.	2 training and development sessions on leadership efficacy. 60% level of achievement on leadership assessment tool developed from Socially Responsible Leadership Scale.	2 training and development sessions on leadership efficacy. 70% level of achievement on leadership assessment tool developed from Socially Responsible Leadership Scale.	2 training and development sessions on leadership efficacy. 70% level of achievement on leadership assessment tool developed from Socially Responsible Leadership Scale.	2 training and development sessions on leadership efficacy. 70% level of achievement on leadership assessment tool developed from Socially Responsible Leadership Scale.
	S1.4 Achieve the International student targets in the Student Enrolment Plan.	S1.4.1 Increase the number of international students to 1 413 by 2025	606	776	931	1 085	1 250	1 413
	S1.5 Develop online programmes.	S1.5.1 Increase the number of Distance Learning enrolments to 1 935 by 2025	.	100	390	1 030	1 557	1 935
	S1.6 Enhance the digital capabilities of the academic staff.	S1.6.1. 95% of Academic staff are trained to advanced level of digital pedagogies by 2025. (Cumulative target.)		60%	70%	80%	90%	95%

Strategic Goal	Strategic Objective	Key Performance Indicator	Baseline 2019	Five-Year Targets				
				2021	2022	2023	2024	2025
	S1.7 Embrace the use of technology to streamline business processes.	S1.7.1 Reduce process inefficiencies through deployment of digital technologies, automation & self-service portals.	5 automated business processes.	9 automated business processes.	10 processes that are automated, self-service provisioned, or manual activity replaced by digital technology.	10 processes that are automated, self-service provisioned, or manual activity replaced by digital technology.	10 processes that are automated, self-service provisioned, or manual activity replaced by digital technology.	Review, enhance and maintain previously automated, self-service provisioned and digitally deployed technologies.
S2. To produce work-ready, entrepreneurial and holistic graduates	S2.1 Achieve the headcount enrolment targets in the Student Enrolment Plan.	S2.1.1 Increase the total headcount enrolments to 23 078 by 2025.	21 225	19 098	19 957	21 104	22 090	23 078
	S2.2 Achieve the first-time entering undergraduate targets in the Student Enrolment Plan.	S2.2.1 Enrol 4 808 first-time entering undergraduates by 2025.	4 429	4 644	4 677	4 718	4 740	4 808
	S2.3 Achieve the SET enrolment targets in the Student Enrolment Plan.	S2.3.1 Increase the number of SET enrolments to 10 362 by 2025.	9 757	9 427	9 610	9 781	10 036	10 362
	S2.4 Achieve the undergraduate pass rate targets in the Student Enrolment Plan.	S2.4.1 Maintain an undergraduate pass rate of at least 79%.	75,7%	79,1%	79,1%	79,0%	79,1%	79,3%

Strategic Goal	Strategic Objective	Key Performance Indicator	Baseline 2019	Five-Year Targets				
				2021	2022	2023	2024	2025
	S2.5 Maintain the number of undergraduate students on WIL placement in all undergraduate programmes that have a WIL component.	S2.5.1 98% of undergraduate students successfully placed for WIL by 2025.	98%	98%	98%	98%	98%	98%
	S2.6 Achieve the graduate targets in the Student Enrolment Plan.	S2.6.1 Increase the number of graduates to 6 492 by 2025.	4 700	5 518	5 689	5 922	6 216	6 492
	S2.7 Increase the number of enrolments in Postgraduate Entrepreneurial Learning programmes.	S2.7.1 150 students enrolled in Postgraduate Entrepreneurial Learning programmes by 2025.	0	0	0	150	150	150
	S2.8 Promote entrepreneurship awareness and thinking amongst the student community.	S2.8.1 Increase the number of training opportunities for students to develop entrepreneurship skills.	2	8	10	12	12	15
	S2.9 Support the translation of student ideas to products through provision of prototyping services to the student community.	S2.9.1 Increase the number of students exposed to digital fabrication to 1 000 by 2025. (Cumulative measure.)	.	200	400	600	800	1 000

Strategic Goal	Strategic Objective	Key Performance Indicator	Baseline 2019	Five-Year Targets				
				2021	2022	2023	2024	2025
S3. To develop a strong culture of research and innovation	S3.1 Achieve the Research Publication unit targets in the Student Enrolment Plan.	S3.1.1 Increase the DHET-accredited Research Publication units to 227 by 2025.	198	199	205	212	220	227
	S3.2 Increase the research in teaching and learning practices through the Scholarship of Teaching and Learning.	S3.2.1 Enhance the teaching / research nexus by producing 60 research outputs a year by 2025.	37	37	45	50	55	60
	S3.3 Achieve the total research output targets in the Student Enrolment Plan.	S3.3.1 Increase the total research outputs to 665 by 2025.	320	511	563	610	639	665
	S3.4 Increase the conversion of research and development (R&D) outputs into products, processes and services that are of benefit to society.	S3.4.1 Increase the number of actionable disclosures of intellectual property emanating from research and development activities per year.	6	8	12	15	18	20
	S3.5 Increase the commercialisation of university-generated intellectual property (IP).	S3.5.1 Increase the number of intellectual property (IP) commercialisations per year.	.	2	4	6	8	10

Strategic Goal	Strategic Objective	Key Performance Indicator	Baseline 2019	Five-Year Targets				
				2021	2022	2023	2024	2025
	S3.6 Support the innovation and entrepreneurial ecosystem by increasing the number of start-up companies incubated.	S3.6.1 Increase the number of start-up companies incubated per year.	7 companies	5 companies	10 companies	12 companies	15 companies	18 companies
S4. To attract, develop and retain staff as the university's most important asset	S.4.1 Achieve the Doctoral qualification targets in the Student Enrolment Plan.	S4.1.1 Increase the number of permanent academic staff with a Doctoral qualification to 141 by 2025.	122	120	125	130	136	141
	S4.2 Facilitate industry exposure for teaching staff.	S4.2.1. Nine per cent (32 of 355) of permanent academic staff with industry exposure by 2025.	6,4%	7,0%	7,5%	8,0%	8,5%	9,0%
	S4.3 Develop academics as university teachers.	S4.3.1 136 academic staff enrolled for PGDip in Higher Education by 2025. (Cumulative target.)	.	5	35 (5+30)	68 (35+33)	103 (68+35)	136 (103+33)
S5. To build strategic partnerships that contribute to the achievement of the university's goals	S5.1 Create strategic platforms for alumni engagements.	S5.1.1 Collaborate with faculties to enhance the participation of alumni on CUT social media platforms. (Cumulative target.)	.	5% participation of alumni on CUT social media platforms.	10% participation of alumni on CUT social media platforms.	15% participation of alumni on CUT social media platforms.	25% participation of alumni on CUT social media platforms.	35% participation of alumni on CUT social media platforms.
S6. To ensure institutional sustainability, expand streams of income and enhance the CUT brand	S6.1 Increase third-stream income for sustainability.	S6.1.1 Faculties to generate R20 million a year in third-stream income by 2025.	R12,9-mil	R13-mil	R14-mil	R16-mil	R18-mil	R20-mil

Strategic Goal	Strategic Objective	Key Performance Indicator	Baseline 2019	Five-Year Targets				
				2021	2022	2023	2024	2025
		S6.1.2 Sector Education & Training Authorities (SETAs) and Work Integrated Learning (WIL) to contribute R25 million a year in third-stream income by 2025.	R32,2-mil	R25-mil	R25-mil	R25-mil	R25-mil	R25-mil
		S6.1.3 Research, Innovation and Engagement to increase third-stream income from the Centre for Rapid Prototyping and Manufacturing (CRPM); Product Development Technology Station (PDTS) and CICAM to R80 million by 2025 (cumulative target).	R30-mil	R45-mil	R55-mil	R65-mil	R75-mil	R80-mil
		S6.1.4 CUT Innovation Services (CUTIS) to generate R100 million per year from contracting projects to CUT, and payment of dividends from 2024.	.	R100-mil	R100-mil	R100-mil	R100-mil	R100-mil
	S6.2 Expand renewable energy sources (solar).	S6.2.1 40% of CUT energy derived from renewable energy by 2025. (Cumulative target.)	3%	10%	15%	20%	30%	40%
	S6.3 Optimise usage of natural water sources.	S6.3.1 30% of water usage derived from natural water sources by 2025. (Cumulative target.)	5%	10%	15%	20%	25%	30%
S7. To promote good governance, human rights and social justice.	S7.1 Effective governance and management structures.	S7.1.1 Review of Council committees' effectiveness.	.	External performance review of Council committees.	90% Department of Higher Education and Training Good Governance scorecard.	95% Department of Higher Education and Training Good Governance scorecard.	95% Department of Higher Education and Training Good Governance scorecard.	95% Department of Higher Education and Training Good Governance scorecard.

Strategic Goal	Strategic Objective	Key Performance Indicator	Baseline 2019	Five-Year Targets				
				2021	2022	2023	2024	2025
	S7.2 Partner with Council to enhance institutional governance through improved relations, effectiveness and efficiency.	S7.2.1 Evaluation of Councillors' individual performance and external evaluation of Council's performance.	.	Evaluation of individual Councillors' performance and Council performance.	Evaluation of individual Councillors' performance.	Evaluation of individual Councillors' performance.	Evaluation of individual Councillors' performance and Council performance.	Evaluation of individual Councillors' performance.

9. CONCLUSION

The main purpose of this Strategic Plan is to provide direction for the CUT community over the next five years as the university seeks to realise its 2030 vision:

> *By 2030, the Central University of Technology, Free State will be a leading African University of Technology, shaping the future through innovation*.

The Strategic Plan will provide the basis for the Annual Performance Plans that the university will develop for the years 2021 to 2025, and submit to the Department of Higher Education and Training.

The plan will be supported by other planning documents, such as the Institutional Operating Plan (IOP), the Transformation Plan, divisional plans for Teaching and Learning, Research, and others.

For most of the year during which the Strategic Plan has been developed, the country has been affected by the COVID-19 pandemic and the lockdowns imposed by Government to restrict the transmission of the virus. Like other universities, CUT has been forced to adapt to a situation in which it had no direct contact, or very little contact, with its students.

The Strategic Plan seeks to incorporate the lessons of COVID-19 in its strategies and to respond to the challenges of the Fourth Industrial Revolution, while keeping in sight the desired end point in 2030.

If it succeeds in aligning the efforts of the diverse stakeholders of the university in the same direction, aimed at the realisation of Vision 2030, it will have served its purpose.

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APPENDICES

a) Enrolment Plan
b) Core Values
c) Graduate Attributes
d) Organogram