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GOVERNMENT NOTICES • GOEWERMENTSKENNISGEWINGS

DEPARTMENT OF HIGHER EDUCATION AND TRAINING

NO. 1266 **26 NOVEMBER 2020**

I, Bonginkosi Emmanuel "Blade" Nzimande, Minister of Higher Education, Science and Innovation, after gazetting and publishing the draft report for the 2020 National List of Occupations in High Demand (OIHD) for public comments, as part of the methodology adopted to identify occupations that are in high demand in the South African Labour market, hereby publish the National List of Occupations in High Demand: 2020. All enquiries on the list can be directed to:

The Director-General, Private Bag X174, Pretoria, 0001, for attention: Ms M Khuluvhe, email Khuluvhe.m@dhet.gov.za. The list is available on the Departmental website: www.dhet.gov.za.



Dr BE Nzimande, MP

Minister of Higher Education, Science and Innovation

Date: 20 November 2020

higher education & training
Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL LIST OF OCCUPATIONS IN HIGH DEMAND: 2020

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1. ABBREVIATIONS

BPESA	Business Processes Enabling South Africa
BUSA	The Business Unity South Africa
DCDT	Department of Communications and Digital Technologies
DHA	Department of Home affairs
DTIC	Department of Trade, Industry and Competition
DHET	Department of Higher Education and Training
ESSA	Employment Services South Africa
ILO	International labour Organisation
ISCO	International System for the Classification of Occupations
LMIP	Labour Market Intelligence Partnership
NSA	National skills Authority
OFO	Organising Framework for Occupations
OIHD	Occupations in High Demand
PSET	Post-School Education and Training
SAQA	South African Qualifications Authority
SETA	Sector Education and Training Authority

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2. BACKGROUND

As is well known, South Africa continues to face devastating and deepening levels of unemployment. Paradoxically, though, this tragic and alarming phenomenon is accompanied by persistent concerns about the quality and availability of skills. Skills 'mismatches,' real and perceived, are widely regarded as constraining economic growth and development, and a barrier to social inclusion and poverty reduction. Consequently, it is imperative to identify skills needs in South Africa and ensure that education and training, at all levels, responds to the needs of the economy.

The Department of Higher Education and Training (DHET) has an important role to play in both identifying the key skills and occupations which will support interventions to grow the economy, and in improving the responsiveness of the Post-School Education and Training (PSET) system to the skills needs of the labour market. The list of Occupations in High Demand (OIHD) is one of several mechanisms through which the DHET fulfils this role. Information about occupations in high demand provides useful insights into the skills needs of the economy and society, especially in a context where the South African labour market is characterised by high levels of unemployment on the one hand, and skills shortages, on the other.

The Department gazetted its first national list of OIHD in 2014, and subsequently, two more lists were gazetted in 2016 and 2018, respectively. The 2020 list will be the fourth and latest iteration produced by the Department.

This gazette provides a list of occupations that have been identified as being in high demand at national level. It is intended to inform decision-making in relation to a wide range of issues pertaining to, *inter alia,* education and training.

3. PURPOSE

The primary purpose of the *National List of Occupations in High Demand: 2020* is to improve the responsiveness of the Post-School Education and Training System to the needs of the economy and to the broader developmental objectives of the country. More specifically, this list has been compiled to support planning processes in the PSET system by:

- serving as a signpost for enrolment planning at universities, TVET Colleges and other education and training institutions;
- signalling the need for the development of new qualifications, especially to respond to new and emerging occupations and skills needs;

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- guiding and informing resource allocation processes; and
- informing career guidance for learners and work-seekers.

In addition, public and private employers, employer organisations, professional bodies, career development organisations, trade unions and research organisations are encouraged to use the list of Occupations in High Demand to support their own programmes and interventions.

4. LIFESPAN OF LIST

The *List of Occupations in High Demand* will be reviewed every 2 years, unless it is deemed necessary to do so earlier. The DHET will publish its next list of occupations in high demand in 2022.

5. MEANING OF OCCUPATIONS IN HIGH DEMAND

For the purpose of this gazette, the term *Occupations in High Demand* means the following:

Occupations in high demand refer to those occupations that show relatively high employment growth based on past, present and future trends and that are currently in shortage.

More specifically, occupations are said to be in high demand if they:

- have shown relatively strong employment growth over the past years;
- are currently showing relatively strong employment growth;
- are expected to show relatively strong employment growth in the future;
- have been identified as being in shortage[1] in the labour market; or
- are new and are expected to emerge in the near future as a result of innovation, technological advancements, the development of new industries, or government's strategic priorities.

The concept of *Occupations in High Demand* therefore encompasses the idea of historical, current and anticipated occupational growth trends (including new and emerging occupations), occupational shortages and occupations associated with government strategic priorities.

[1] An occupation is regarded as being in shortage when the demand for labour exceeds the supply of people willing to work at a particular wage, under prevailing working conditions, at a particular place and point in time (adapted, 2015, European Parliament, Labour Market Shortages in the European Union).

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6. THE ORGANISING FRAMEWORK FOR OCCUPATIONS

Many countries across the world use occupational classification systems to collect information and report on the size and shape of the labour market. The International Labour Organisation (ILO) has coordinated the development of a common language to classify occupations in the form of the *International System for the Classification of Occupations (ISCO),* to facilitate international comparability. In South Africa, the DHET has adopted a similar occupational classification system[2], namely, the *Organising Framework for Occupations (OFO)* as a basis for communicating about occupations.

The OFO is a coded occupational classification system adopted by the DHET to identify, report and monitor skills demand and supply in the South African labour market. It provides insight into shifts at task level, at job and occupational level that indicate changes in demand in the labour market.

The occupations identified in the National List of OIHD: 2020 have been selected from the 1 510 occupations identified in the OFO (2019 version).

7. METHODOLOGY USED TO IDENTIFY THE NATIONAL LIST OF OCCUPATIONS IN HIGH DEMAND: 2020

The methodology used for the development of the 2020 national List of OIHD is described in detail in a technical report titled: *The 2020 National list of Occupations in High Demand: A Technical Report*[3]. The report can be found on the Department's website: www.dhet.gov.za and on the LMI research website: www.lmi-research.org.

As demonstrated by international good practice, the List of OIHD was developed by triangulating the findings from both the quantitative and qualitative methodologies, as described in detail in the Technical Report.

The quantitative methodology used in the compilation of the list adopted four domains for the development of indicators and benchmarks, which were combined into an index of occupations

[2] The OFO was developed by then Department of Labour in 2006

[3] DNA Economics (2020). *The 2020 National List of Occupations in High Demand (OIHD): Technical Report*. Produced for the Department of Higher Education and Training (DHET) as part of their Labour Market Intelligence (LMI) research programme.

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in high demand. These domains include aspects related to wages, vacancies, occupational growth and anticipated demand based on government strategies.

The qualitative methodology drew on a number of different sources, namely: a review of the national and international literature on occupational shortages and growth; inputs received from stakeholders through a DHET call for evidence; a scan of government strategies and policies for economic growth and development; and to ensure transparency, greater involvement of stakeholders has been actively pursued, as indicated in the following processes below:

4.1. A two-day methodology workshop was held on the 03 to 04 June 2019 to engage on, among others, the approach and methodology towards the development of the list of OIHD. This workshop was attended by key government departments (DHET, Department of Trade, Industry and Competition, Department of Home Affairs, the Department of Employment and Labour), provincial government departments, SETAs and research experts in the field of the identification of skills needs.

4.2. The DHET issued a Call for Evidence in July 2019 in order to obtain stakeholder inputs for the identification of occupations in high demand. As part of the Call for Evidence, stakeholders were invited to propose occupations that should be included in the Department's 2020 National list of Occupations in High Demand, and motivate for the inclusion.

4.3. On 25 June 2020, DHET presented the methodology to the Social Partners of the Job Summit with representation from business, labour, government and community, and invited inputs thereon.

4.4. Representatives from a number of organisations were consulted in the process of verifying the list of OIHD, including:

1. The Department of Home affairs (DHA)	2. The Department of Trade, Industry and Competition (DTIC)
3. The Department of Communications and Digital Technologies (DCDT)	4. The National Skills Authority (NSA)
5. The Sector Education and Training Authorities (SETAs)	6. The South African Qualifications Authority (SAQA)
7. The Business Unity South Africa (BUSA)	8. The Drone Council
9. Business Processes Enabling South Africa (BPESA)	10. The Institute of Risk Management South Africa
11. XPATWEB	

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4.5. On 17 August 2020, a list of OIHD, along with a description of the methodology, was gazetted for public comment. This process afforded the public an opportunity to provide feedback on an initial list of OIHD. This list was amended to take into account the 22 responses or comments received from the following organisations, to motivate for either the inclusion or exclusion of certain occupations in the 2020 list of OIHD:

1. Business Processes Enabling South Africa (BPESA)	2. The Education, Training and Development Practices Sector Education and Training Authority (ETDP SETA)
3. The Wholesale and Retail Sector Education and Training Authority (W&R SETA)	4. The Saldanha Bay Industrial Development Zone (SBIDZ)
5. Forest-Based Industry Board	6. Clothing, Textiles, Footwear and Leather (CTFL) Goods industry
7. The National Association of Automotive Component and Allied Manufacturers (NAACAM)	8. The Council for Scientific and Industrial Research (CSIR)
9. The South African Blanket Manufacturers Employers Organisation (SABMEO)	10. The Southern African Institute for Business Accountants (SAIBA)
11. The National Bargaining Council for the Clothing Manufacturing Industry	12. Department of Tourism
13. Department of Transport (DoT)	14. Drone Council of South Africa
15. Research Animal Facility, Faculty of Health Sciences, University of Cape Town	16. Grassland Society of Southern Africa
17. South African Artisans Movement	18. Actuarial Society of South Africa
19. Institute of Information Technology Professionals South Africa	20. Visa-One (Inbound Visa & Migration Services)
21. Forestry South Africa	22. XPATWEB

The processes to identify OIHD would be incomplete without taking into account the *effects of the COVID-19 pandemic*. As is well known, the COVID-19 pandemic has had a devastating impact on the South African economy. Besides its overall economic shock, the pandemic is likely to change the composition of the South African economy fundamentally. This means that strong industries might struggle while previously weaker industries might thrive. Exactly

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how this will happen is still highly uncertain, and there is not enough certainty to remove or add any occupations purely based on the potential changes the pandemic might bring about.

As a result, the development of the list of OIHD drew on cases in which industry representatives specifically argued for an occupation's inclusion or exclusion based on COVID-19 considerations. The potential impact of the pandemic cannot, however, be ignored. It is possible to trace every occupation down to its primary (and secondary if the occupation is transversal) economic sector(s). While the impact of demand at an occupational level is difficult to determine, a myriad of research points out that sectoral growth has a direct and positive association with sectoral employment. We have therefore opted to colour-code occupations to demonstrate the potential impact of the pandemic on the occupation's primary sector. A description of the colour codes is indicated in the block below. The users of the list of OIHD should, therefore view this colour-coding as a signal of the possible impact of COVID-19 on occupational demand, in the context of significant economic uncertainties. An occupation is:

Highlighted in green if the sector within which an occupation is housed is expected to: • Recover relatively quickly from the impact of COVID-19, or • Show signals of increased labour demand due to COVID-19
Highlighted in white/not highlighted if the sector within which an occupation is housed is expected to: • Recover from the impact of COVID-19 in a moderate timeframe, or • Labour demand is expected to be ambiguously affected by COVID-19 in the sector, or Labour demand is not expected to change due to the impact of COVID-19
Highlighted in red if the sector within which an occupation is housed is expected to: • Recover slowly from the impact of COVID-19, or • Show signals of decreased labour demand due to COVID-19

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8. NATIONAL LIST OF OCCUPATIONS IN HIGH DEMAND: 2020

The 2020 national list of OIHD is indicated in the table below. The table provides the name of the occupation, the OFO code of the occupation and the minimum qualification usually associated with a qualification. It should be noted that the qualifications indicated below are the minimum commonly associated with an occupation. Therefore, these minimum qualifications are simply sign-posts for skills planning purposes, and do not prescribe requirements for employment purposes.

Further notation in the table relates to the asterisk (*) accompanying several occupations. The asterisk indicates that these occupations also appeared in the Department of Labour's Employment Services South Africa (ESSA) work seekers database as of 14 September 2020. There are several reasons why there appear to be so many unemployed work seekers in occupations that are in the list of OIHD. These include the following:

a) Geographical dynamics – Given that the list of OIHD reflects a national picture of occupational demand and does not therefore take into account provincial or local variations in occupational demand, it is to be expected that work seekers in the ESSA database could be living in geographical areas where occupational demand is lower than national demand.

b) Timing of data availability – The list of OIHD is based on some data that is two years old (for example, wages data) whereas the ESSA database reflects information as of 14 September 2020. This misalignment in the timing of information occupational supply and demand could explain why an occupation is in demand whilst there are recorded numbers of unemployed as per the ESSA database.

c) Impact of Covid-19 – The data about work seekers from the ESSA database is very recent; it captures devastating impact of Covid-19 on employment. On the other hand, the list of OIHD is based on data that goes beyond the immediate and short-term effect of Covid-19.

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The 2020 list of OIHD comprises a total of 345 occupations. The order of occupations listed has no relation to priority, but rather follows the ordering of the OFO framework.

Additionally, this list is not intended to signal shortages (i.e., this is not a scarce skills list), and it is not intended to be used to inform the recruitment of critically skilled foreign nationals[4].

6-Digit OFO Code	6-Digit OFO Description	Minimum Qualification Required
2019-112101	Director (Enterprise/Organisation)	Diploma or advanced certificate (NQF Level 6)
2019-121101	Finance Manager	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-121103	Credit Manager	Diploma or advanced certificate (NQF Level 6)
2019-121104	Internal Audit Manager	Occupational certificate (NQF Level 7)
2019-121201	Human Resource Manager*	Bachelor's degree or advanced diploma (NQF Level 7)
2019-121202	Business Training Manager	Diploma or advanced certificate (NQF Level 6)
2019-121206	Health and Safety Manager	Diploma or advanced certificate (NQF Level 6)
2019-121301	Policy and Planning Manager	Diploma or advanced certificate (NQF Level 6)
2019-121901	Corporate General Manager	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-121903	Physical Asset Manager	Diploma or advanced certificate (NQF Level 6)
2019-121905	Programme or Project Manager*	Occupational certificate (NQF Level 5)
2019-121908	Quality Systems Manager	Bachelor's degree or advanced diploma (NQF Level 7)
2019-122101	Sales and Marketing Manager	Bachelor's degree or advanced diploma (NQF Level 7)
2019-122102	Sales Manager	Diploma or advanced certificate (NQF Level 6)
2019-122104	Interactive and Direct Marketing Strategist	Diploma or advanced certificate (NQF Level 6)
2019-122105	Customer Service Manager	Diploma or advanced certificate (NQF Level 6)
2019-122301	Research and Development Manager	Diploma or advanced certificate (NQF Level 6)
2019-131101	Agricultural farm manager	Bachelor's degree or advanced diploma (NQF Level 7)
2019-131103	Forestry operations supervisor	Bachelor's degree or advanced diploma (NQF Level 7)

[4] The only official list to inform the application of the work visa is called the Critical Skills List to be published by the Department of Home Affairs.

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6-Digit OFO Code	6-Digit OFO Description	Minimum Qualification Required
2019-132101	Manufacturer	Diploma or advanced certificate (NQF Level 6)
2019-132102	Industrial Production Manager	Bachelor's degree or advanced diploma (NQF Level 7)
2019-132104	Engineering manager*	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-132106	Manufacturing Quality Manager	Diploma or advanced certificate (NQF Level 6)
2019-132107	Quality Manager	Bachelor's degree or advanced diploma (NQF Level 7)
2019-132301	Construction project manager	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-132401	Supply and distribution manager	Occupational certificate (NQF Level 6)
2019-132402	Logistics manager*	Bachelor's degree or advanced diploma (NQF Level 7)
2019-132403	Road transport manager	Occupational certificate (NQF Level 5)
2019-132404	Warehouse manager	Diploma or advanced certificate (NQF Level 6)
2019-132406	Railway station manager	National certificate (NQF Level 4)
2019-132407	Airport or harbour manager	Diploma or advanced certificate (NQF Level 6)
2019-133101	Chief Information Officer	Bachelor's degree or advanced diploma (NQF Level 7)
2019-133102	ICT Project Manager	Diploma or advanced certificate (NQF Level 6)
2019-133103	Data Management Manager	Diploma or advanced certificate (NQF Level 6)
2019-133104	Application Development Manager	Bachelor's degree or advanced diploma (NQF Level 7)
2019-133105	Information Technology Manager	Bachelor's degree or advanced diploma (NQF Level 7)
2019-133106	Information Systems Director*	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-134501	School Principal	Bachelor's degree or advanced diploma (NQF Level 7)
2019-134502	FET College Principal*	Bachelor's degree or advanced diploma (NQF Level 7)
2019-134503	Faculty Head	Doctoral degree or professional doctoral degree (NQF Level 10)
2019-134504	District Education Manager	Diploma or advanced certificate (NQF Level 6)
2019-134505	Educational Rector	Doctoral degree or professional doctoral degree (NQF Level 10)
2019-134506	Educational Registrar	Doctoral degree or professional doctoral degree (NQF Level 10)

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6-Digit OFO Code	6-Digit OFO Description	Minimum Qualification Required
2019-134507	Departmental Head	Diploma or advanced certificate (NQF Level 6)
2019-134919	Traffic and law enforcement manager	Diploma or advanced certificate (NQF Level 6)
2019-141101	Hotel or motel manager	Diploma or advanced certificate (NQF Level 6)
2019-142103	Retail General Manager*	Occupational certificate (NQF Level 6)
2019-143905	Call or Contact Centre Manager	Diploma or advanced certificate (NQF Level 6)
2019-143906	Caravan Park and Camping Ground Manager	Diploma or advanced certificate (NQF Level 6)
2019-143907	Dock master	Diploma or advanced certificate (NQF Level 6)
2019-143908	Travel Accommodation Inspector	Diploma or advanced certificate (NQF Level 6)
2019-143909	Travel Agency Manager	Occupational certificate (NQF Level 5)
2019-211201	Meteorologist	Bachelor's degree or advanced diploma (NQF Level 7)
2019-211301	Chemist	Bachelor's degree or advanced diploma (NQF Level 7)
2019-211401	Geologist	Bachelor's degree, occupational certificate or advanced diploma (NQF Level 7)
2019-211402	Geophysicist	Bachelor's degree, occupational certificate or advanced diploma (NQF Level 7)
2019-211403	Materials scientist	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-211405	Mineralogist	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-211406	Hydrologist	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-211407	Oceanographer	Diploma or advanced certificate (NQF Level 6)
2019-212101	Actuary*	Bachelor's degree or advanced diploma (NQF Level 7)
2019-213105	Biotechnologist	Diploma or advanced certificate (NQF Level 6)
2019-213107	Marine biologist	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-213201	Agriculture consultant	Diploma or advanced certificate (NQF Level 6)
2019-213202	Agricultural scientist	Diploma or advanced certificate (NQF Level 6)
2019-213204	Wine Maker*	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-213205	Food and beverage scientist*	Bachelor's degree or advanced diploma (NQF Level 7)

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6-Digit OFO Code	6-Digit OFO Description	Minimum Qualification Required
2019-214101	Industrial engineer*	Bachelor's degree or advanced diploma (NQF Level 7)
2019-214102	Industrial engineering technologist*	Bachelor's degree or advanced diploma (NQF Level 7)
2019-214104	Production Engineering Technologist	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-214201	Civil engineer	Bachelor's degree or advanced diploma (NQF Level 7)
2019-214202	Civil Engineering Technologist	Bachelor's degree or advanced diploma (NQF Level 7)
2019-214401	Mechanical engineer	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-214402	Mechanical engineering technologist*	Diploma or advanced certificate (NQF Level 6)
2019-214403	Aeronautical Engineer	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-214404	Aeronautical Engineering Technologist	Diploma or advanced certificate (NQF Level 6)
2019-214405	Naval architect	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-214501	Chemical engineer	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-214904	Quantity Surveyor*	Bachelor's degree or advanced diploma (NQF Level 7)
2019-214905	Agricultural Engineer	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-214906	Agricultural Engineering Technologist*	Diploma or advanced certificate (NQF Level 6)
2019-215101	Electrical engineer	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-216101	Architect	Bachelor's degree or advanced diploma (NQF Level 7)
2019-216301	Fashion Designer	Bachelor's degree or advanced diploma (NQF Level 7)
2019-216302	Industrial Designer	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-216304	Footwear Designer	Diploma or advanced certificate (NQF Level 6)
2019-216402	Transport analyst	Diploma or advanced certificate (NQF Level 6)
2019-216601	Digital Artist	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-216603	Multimedia Designer	Bachelor's degree or advanced diploma (NQF Level 7)
2019-216604	Web Designer	Bachelor's degree or advanced diploma (NQF Level 7)
2019-221101	General medical practitioner*	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)

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6-Digit OFO Code	6-Digit OFO Description	Minimum Qualification Required
2019-222103	Registered Nurse (Child and Family Health) *	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-222104	Registered nurse (community health)	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-222105	Registered Nurse (Critical Care and Emergency)	Bachelor's degree or advanced diploma (NQF Level 7)
2019-222108	Registered nurse (medical)	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-222109	Registered Nurse (Medical Practice)	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-222110	Registered Nurse (Mental Health) *	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-222112	Registered nurse (surgical)	Bachelor's degree or advanced diploma (NQF Level 7)
2019-222114	Nurse educator	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-226201	Hospital pharmacist	Occupational certificate (NQF Level 6)
2019-226202	Industrial pharmacist	Occupational certificate (NQF Level 6)
2019-226203	Retail pharmacist	Occupational certificate (NQF Level 6)
2019-226302	Safety, Health, Environment and Quality (SHE&Q) Practitioner	Occupational certificate (NQF Level 5)
2019-226304	Food inspector	Intermediate certificate (NQF Level 3)
2019-231101	University Lecturer[5]	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-231102	University Tutor	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-232130	TVET Educator	Bachelor's degree or advanced diploma (NQF Level 7)
2019-233107	FET Phase School Teacher (Grades 10-12)	Bachelor's degree or advanced diploma (NQF Level 7)
2019-233108	Senior Phase School Teacher (Grades 7 - 9)	Bachelor's degree or advanced diploma (NQF Level 7)
2019-234101	Foundation Phase School Teacher	Bachelor's degree or advanced diploma (NQF Level 7)
2019-234102	Intermediate Phase School Teacher (Grades 4-6)	Bachelor's degree or advanced diploma (NQF Level 7)
2019-234201	Early Childhood Development Practitioner	Occupational certificate (NQF Level 5)

[5] The Universities South Africa (USAf) submitted a list of critical and scares skills that are in shortage in specific fields across the South African universities system. Please refer to **Annexure A** for a detailed categorisation of faculties and fields in respect of lecturer positions that have experienced ongoing challenges to fill.

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6-Digit OFO Code	6-Digit OFO Description	Minimum Qualification Required
2019-235101	Education or Training Advisor*	Bachelor's degree or advanced diploma (NQF Level 7)
2019-235201	Special Needs Teacher	Bachelor's degree or advanced diploma (NQF Level 7)
2019-235502	Private Tuition Dance Teacher*	Diploma or advanced certificate (NQF Level 6)
2019-241101	General Accountant	Bachelor's degree or advanced diploma (NQF Level 7)
2019-241102	Management Accountant	Occupational certificate (NQF Level 6)
2019-241103	Tax Professional	Bachelor's degree or advanced diploma (NQF Level 7)
2019-241104	External Auditor	Bachelor's degree or advanced diploma (NQF Level 7)
2019-241106	Accountant in Practice	Bachelor's degree or advanced diploma (NQF Level 7)
2019-241107	Financial Accountant	Bachelor's degree or advanced diploma (NQF Level 7)
2019-241108	Forensic Accountant*	Bachelor's degree or advanced diploma (NQF Level 7)
2019-241201	Investment analyst	Occupational certificate (NQF Level 6)
2019-241202	Investment manager*	Occupational certificate (NQF Level 6)
2019-241203	Investment advisor	Occupational certificate (NQF Level 6)
2019-241204	Financial markets practitioner*	Bachelor's degree or advanced diploma (NQF Level 7)
2019-241301	Financial Investment Advisor	Occupational certificate (NQF Level 6)
2019-242101	Management Consultant	Diploma or advanced certificate (NQF Level 6)
2019-242102	Organisation and Methods Analyst	Bachelor honours degree, postgraduate diploma, occupational certificate or bachelor's degree (NQF Level 8)
2019-242103	Business Development Officer	Diploma or advanced certificate (NQF Level 6)
2019-242202	Policy Analyst*	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-242203	Company Secretary	Occupational certificate (NQF Level 8)
2019-242208	Organisational Risk Manager	Bachelor honours degree, postgraduate diploma, occupational certificate or bachelor's degree (NQF Level 8)
2019-242209	Accounting Officer	Bachelor's degree or advanced diploma (NQF Level 7)
2019-242210	Business Administrator*	Bachelor's degree or advanced diploma (NQF Level 7)
2019-242211	Internal Auditor	Bachelor's degree or advanced diploma (NQF Level 7)

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6-Digit OFO Code	6-Digit OFO Description	Minimum Qualification Required
2019-242213	Regulatory affairs officer	Diploma or advanced certificate (NQF Level 6)
2019-242214	Intellectual Property Special Advisor	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-242215	Fraud Examiner	Bachelor honours degree, postgraduate diploma, occupational certificate or bachelor's degree (NQF Level 8)
2019-242302	Skills Development Practitioner*	Higher certificate (NQF Level 5)
2019-242303	Human Resource Advisor	Diploma or advanced certificate (NQF Level 6)
2019-243101	Advertising Specialist	Diploma or advanced certificate (NQF Level 6)
2019-243102	Market Research Analyst	Diploma or advanced certificate (NQF Level 6)
2019-243103	Tourism officer	Diploma or advanced certificate (NQF Level 6)
2019-243104	Market Campaign Analyst*	Diploma or advanced certificate (NQF Level 6)
2019-243201	Communication Coordinator	Diploma or advanced certificate (NQF Level 6)
2019-243202	Communication Strategist	Diploma or advanced certificate (NQF Level 6)
2019-243203	Corporate Communication Manager	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-251101	ICT Systems Analyst	Bachelor's degree or advanced diploma (NQF Level 7)
2019-251102	Data Scientist	Bachelor's degree or advanced diploma (NQF Level 7)
2019-251201	Software Developer	Diploma or advanced certificate (NQF Level 6)
2019-251202	Programmer Analyst	Diploma or advanced certificate (NQF Level 6)
2019-251203	Developer Programmer	Diploma or advanced certificate (NQF Level 6)
2019-251301	Multimedia Specialist	Diploma or advanced certificate (NQF Level 6)
2019-251302	Web Developer	Diploma or advanced certificate (NQF Level 6)
2019-251401	Applications Programmer	Diploma or advanced certificate (NQF Level 6)
2019-251901	Computers Quality Assurance Analyst*	Diploma or advanced certificate (NQF Level 6)
2019-252101	Database Designer and Administrator	Diploma or advanced certificate (NQF Level 6)
2019-252201	Systems Administrator	Diploma or advanced certificate (NQF Level 6)
2019-252301	Computer Network and Systems Engineer*	Bachelor's degree or advanced diploma (NQF Level 7)

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6-Digit OFO Code	6-Digit OFO Description	Minimum Qualification Required
2019-252302	Network Analyst	Bachelor's degree or advanced diploma (NQF Level 7)
2019-252901	ICT Security Specialist	Diploma or advanced certificate (NQF Level 6)
2019-261101	Attorney	Bachelor's degree or advanced diploma (NQF Level 7)
2019-261106	Advocate	Bachelor's degree or advanced diploma (NQF Level 7)
2019-261201	Judge	Bachelor's degree or advanced diploma (NQF Level 7)
2019-261202	Magistrate	Bachelor's degree or advanced diploma (NQF Level 7)
2019-262202	Information Services Manager	Bachelor's degree or advanced diploma (NQF Level 7)
2019-264102	Book or Script Editor*	Higher certificate (NQF Level 5)
2019-264103	Technical Writer*	Higher certificate (NQF Level 5)
2019-311101	Chemistry technician	Diploma or advanced certificate (NQF Level 6)
2019-311102	Physical Science Technician	Diploma or advanced certificate (NQF Level 6)
2019-311201	Civil engineering technician	Diploma or advanced certificate (NQF Level 6)
2019-311203	Town planning technician	Diploma or advanced certificate (NQF Level 6)
2019-311301	Electrical engineering Technician*	Diploma or advanced certificate (NQF Level 6)
2019-311401	Electronic engineering technician	Diploma or advanced certificate (NQF Level 6)
2019-311501	Mechanical Engineering Technician	Diploma or advanced certificate (NQF Level 6)
2019-311502	Pressure equipment inspector	Diploma or advanced certificate (NQF Level 6)
2019-311503	Aeronautical Engineering Technician	Diploma or advanced certificate (NQF Level 6)
2019-311801	Draughts person	Diploma or advanced certificate (NQF Level 6)
2019-311905	Industrial Engineering Technician	Diploma or advanced certificate (NQF Level 6)
2019-312201	Production/operations supervisor (manufacturing)	Bachelor's degree or advanced diploma (NQF Level 7)
2019-312301	Building Associate	National certificate (NQF Level 4)
2019-313106	Concentrated solar power (CSP) plant process controller	Occupational certificate (NQF Level 4)
2019-313903	Clothing, Textile and Footwear Manufacturing Process Control Technician	No formal qualification required

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6-Digit OFO Code	6-Digit OFO Description	Minimum Qualification Required
2019-314101	Life science technician	Diploma or advanced certificate (NQF Level 6)
2019-315203	Ship's surveyor	Diploma or advanced certificate (NQF Level 6)
2019-315301	Aircraft navigator	Diploma or advanced certificate (NQF Level 6)
2019-315401	Air Traffic controller	Diploma or advanced certificate (NQF Level 6)
2019-315501	Airborne electronics analyst	Diploma or advanced certificate (NQF Level 6)
2019-315502	Airworthiness surveyor	Diploma or advanced certificate (NQF Level 6)
2019-324101	Veterinary nurse	Diploma or advanced certificate (NQF Level 6)
2019-324102	Veterinary technician*	Diploma or advanced certificate (NQF Level 6)
2019-324103	Veterinary technologist	Diploma or advanced certificate (NQF Level 6)
2019-325702	Marine safety officer	Diploma or advanced certificate (NQF Level 6)
2019-325705	Safety inspector	National certificate (NQF Level 4)
2019-331301	Bookkeeper	Occupational certificate (NQF Level 5)
2019-331302	Accounting Technician*	National certificate (NQF Level 4)
2019-331303	Tax Technician	Occupational certificate (NQF Level 6)
2019-331401	Statistical and Mathematical Assistant	Bachelor honours degree, postgraduate diploma, or bachelor's degree (NQF Level 8)
2019-331501	Valuer	Occupational certificate (NQF Level 5)
2019-331504	Insurance risk manager	Diploma or advanced certificate (NQF Level 6)
2019-332101	Insurance Agent*	Occupational certificate (NQF Level 5)
2019-332102	Insurance Broker	National certificate (NQF Level 4)
2019-332201	Commercial sales representative	Occupational certificate (NQF Level 4)
2019-332203	Sales representative (personal and household goods)	Occupational certificate (NQF Level 4)
2019-332301	Retail Buyer	Occupational certificate (NQF Level 5)
2019-332302	Purchasing Officer	Occupational certificate (NQF Level 5)
2019-332402	Finance Broker	Bachelor's degree or advanced diploma (NQF Level 7)

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6-Digit OFO Code	6-Digit OFO Description	Minimum Qualification Required
2019-333401	Property Manager	Diploma or advanced certificate (NQF Level 6)
2019-333402	Real estate agent	National certificate (NQF Level 4)
2019-333905	Supply Chain Practitioner*	Diploma or advanced certificate (NQF Level 6)
2019-335914	Train examiner	No formal qualification required
2019-343201	Interior Designer	Diploma or advanced certificate (NQF Level 6)
2019-343203	Visual Merchandiser	Occupational certificate (NQF Level 4)
2019-343401	Chef	Diploma or advanced certificate (NQF Level 6)
2019-351201	ICT Communications Assistant	Diploma or advanced certificate (NQF Level 6)
2019-351301	Computer Network Technician	Diploma or advanced certificate (NQF Level 6)
2019-351302	Geographic Information Systems Technicians	Higher certificate (NQF Level 5)
2019-351303	Marine GIS Technician	Higher certificate (NQF Level 5)
2019-411101	General Clerk	Diploma or advanced certificate (NQF Level 6)
2019-413201	Data entry operator*	Diploma or advanced certificate (NQF Level 6)
2019-421202	Gaming worker	Higher certificate (NQF Level 5)
2019-421204	Bookmaker's clerk	Higher certificate (NQF Level 5)
2019-422102	Travel consultant	Diploma or advanced certificate (NQF Level 6)
2019-422201	Inbound Contact Centre Consultant	Elementary certificate (NQF Level 2)
2019-422202	Outbound Contact Centre Consultant	Diploma or advanced certificate (NQF Level 6)
2019-422203	Contact Centre Real Time Advisor	National certificate (NQF Level 4)
2019-422204	Contact Centre Resource Planner	Diploma or advanced certificate (NQF Level 6)
2019-422205	Contact Centre Forecast Analyst	National certificate (NQF Level 4)
2019-422206	Call or Contact Centre Agent	National certificate (NQF Level 4)
2019-422501	Enquiry clerk*	National certificate (NQF Level 4)
2019-431101	Accounts Clerk	Higher certificate (NQF Level 5)

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6-Digit OFO Code	6-Digit OFO Description	Minimum Qualification Required
2019-431102	Cost Clerk	Occupational certificate (NQF Level 2)
2019-431103	Taxation Clerk*	Diploma or advanced certificate (NQF Level 6)
2019-432201	Production Coordinator*	National certificate (NQF Level 4)
2019-441203	Mail Clerk*	Diploma or advanced certificate (NQF Level 6)
2019-441301	Coding Clerk	No formal qualification required
2019-441302	Proof Reader	Diploma or advanced certificate (NQF Level 6)
2019-511102	Bus Hostess	National certificate (NQF Level 4)
2019-511103	Marine steward	Diploma or advanced certificate (NQF Level 6)
2019-511104	Railway steward*	Occupational certificate (NQF Level 4)
2019-511302	Tour guide	National certificate (NQF Level 4)
2019-514101	Hairdresser	Occupational certificate (NQF Level 4)
2019-522201	Retail Supervisor	Higher certificate (NQF Level 5)
2019-522301	Sales Assistant (General)	Occupational certificate (NQF Level 3)
2019-531101	Child Care Worker	National certificate (NQF Level 4)
2019-531102	Family day care worker	National certificate (NQF Level 4)
2019-531103	Nanny	National certificate (NQF Level 4)
2019-531104	Out of school hours care worker	National certificate (NQF Level 4)
2019-531105	Child or youth residential care assistant	National certificate (NQF Level 4)
2019-532201	Residential care officer	National certificate (NQF Level 4)
2019-532202	Aged or disabled carer	National certificate (NQF Level 4)
2019-532203	Community healthcare worker (CHW)	National certificate (NQF Level 4)
2019-541101	Fire Fighter	National certificate or occupational certificate (NQF Level 4)
2019-541102	Hazardous Materials Removal Workers	No qualification required
2019-541201	Traffic officer	National certificate (NQF Level 4)

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6-Digit OFO Code	6-Digit OFO Description	Minimum Qualification Required
2019-541401	Security Officer *	National certificate (NQF Level 4)
2019-541402	Alarm, Security or Surveillance Monitor	National certificate (NQF Level 4)
2019-541403	Retail Loss Prevention Officer	National certificate (NQF Level 4)
2019-541404	Close protector	National certificate (NQF Level 4)
2019-611202	Horticultural farmer	Diploma or advanced certificate (NQF Level 6)
2019-613101	Mixed crop and livestock farmer	Occupational certificate (NQF Level 3)
2019-621101	Tree feller	Intermediate certificate (NQF Level 3)
2019-641501	Carpenter and Joiner	Occupational certificate (NQF Level 4)
2019-641502	Carpenter	Occupational certificate (NQF Level 4)
2019-641503	Joiner	Occupational certificate (NQF Level 4)
2019-642201	Wall and floor tiler	Occupational certificate (NQF Level 4)
2019-642202	Floor finisher	Occupational certificate (NQF Level 3)
2019-651201	Pressure welder	National certificate (NQF Level 4)
2019-651403	Steel Fixer	Intermediate certificate (NQF Level 3)
2019-652201	Toolmaker	Higher certificate (NQF Level 5)
2019-652205	Master Toolmaker	Diploma or advanced certificate (NQF Level 6)
2019-652301	Metal Machinist*	Occupational certificate (NQF Level 4)
2019-652302	Fitter and Turner*	Occupational certificate (NQF Level 4)
2019-653101	Automotive motor mechanic	Occupational certificate (NQF Level 4)
2019-653301	Industrial Machinery Mechanic	Occupational certificate (NQF Level 4)
2019-653302	Mechanical Equipment Repairer	No qualification required
2019-653303	Mechanical fitter	Occupational certificate (NQF Level 4)
2019-653304	Diesel Fitter	Occupational certificate (NQF Level 4)
2019-653305	Small Engine Mechanic	Occupational certificate (NQF Level 4)

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6-Digit OFO Code	6-Digit OFO Description	Minimum Qualification Required
2019-653306	Diesel Mechanic	Occupational certificate (NQF Level 4)
2019-653307	Heavy equipment mechanic*	Occupational certificate (NQF Level 4)
2019-653308	Tractor Mechanic	Occupational certificate (NQF Level 4)
2019-653309	Forklift Mechanic	Occupational certificate (NQF Level 5)
2019-653310	Lubrication Equipment Mechanic*	Occupational certificate (NQF Level 4)
2019-653402	Non-motorised transport equipment repairer	No formal qualification required
2019-661101	Precision instrument maker and repairer	National certificate (NQF Level 4)
2019-661801	Textile, Leather and Related Materials Handicraft Workers	Elementary certificate (NQF Level 2)
2019-671102	Electrical Installation Inspector	National certificate (NQF Level 4)
2019-671203	Mechatronics Technician	Occupational certificate (NQF Level 4)
2019-671204	Lift mechanic	Occupational certificate (NQF Level 4)
2019-671205	Weapon Systems Mechanic	Occupational certificate (NQF Level 4)
2019-671206	Electrical Equipment Mechanic*	Occupational certificate (NQF Level 4)
2019-671207	Armature Winder	Occupational certificate (NQF Level 4)
2019-671208	Transportation electrician	Occupational certificate (NQF Level 4)
2019-671302	Cable jointer	National certificate (NQF Level 4)
2019-681103	Butcher	National certificate (NQF Level 4)
2019-681201	Confectionary Baker	Occupational certificate (NQF Level 3)
2019-682201	Cabinet Maker	National certificate (NQF Level 4)
2019-682301	Furniture Finisher	National certificate (NQF Level 4)
2019-683101	Tailor	National certificate (NQF Level 4)
2019-683303	Textile Produce Mender and Embroiderer	Elementary certificate (NQF Level 2)
2019-683401	Upholsterer	National certificate (NQF Level 4)
2019-684101	Diver	No formal qualification required

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6-Digit OFO Code	6-Digit OFO Description	Minimum Qualification Required
2019-684301	Crop Produce Analyst	Occupational certificate (NQF Level 5)
2019-684302	Tobacco Grader	National certificate (NQF Level 4)
2019-684303	Cotton Grader*	Intermediate certificate (NQF Level 3)
2019-684304	Wool Classer / Grader*	Elementary certificate (NQF Level 2)
2019-684305	Quality Controller (Manufacturing)	Higher certificate (NQF Level 5)
2019-684901	Textile, Clothing, Footwear and Leather Processing Machine Mechanic	National certificate (NQF Level 4)
2019-684908	Shipwright	National certificate (NQF Level 4)
2019-711301	Driller	Occupational certificate (NQF Level 2)
2019-711302	Rock drill operator	Intermediate certificate (NQF Level 3)
2019-711401	Concrete products machine operator	Occupational certificate (NQF Level 4)
2019-711402	Glass, clay, and stone manufacturing machine setter and minder	No qualification required
2019-711403	Plaster machine operator	Intermediate certificate (NQF Level 3)
2019-711404	Cement production plant operator	Intermediate certificate (NQF Level 3)
2019-711405	Concrete batching plant operator	Occupational certificate (NQF Level 4)
2019-714208	Plastics Manufacturing Machine Minder	Occupational Certificate (NQF Level 4)
2019-715101	Fibre Preparation Production Machine Operator*	Occupational certificate (NQF Level 4)
2019-715102	Yarn Production Machine Operator	Occupational certificate (NQF Level 2)
2019-715103	Man-made Fibre Production Machine Operator	Occupational certificate (NQF Level 2)
2019-715201	Weaving Machine Operator	Elementary certificate (NQF Level 2)
2019-715202	Warping Machine Operator	Elementary certificate (NQF Level 2)
2019-715203	Braiding Machine Operator	Elementary certificate (NQF Level 2)
2019-715204	Knitting Machine Operator	Elementary certificate (NQF Level 2)
2019-715205	Non-woven Machine Operator	Elementary certificate (NQF Level 2)
2019-715206	Textile Dry Finishing Machine Operator	National certificate (NQF Level 4)

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6-Digit OFO Code	6-Digit OFO Description	Minimum Qualification Required
2019-715302	Clothing, Textile and Leather Goods Production Operator	Elementary certificate (NQF Level 2)
2019-715401	Textile Wet Process Production Operator	Elementary certificate (NQF Level 2)
2019-715501	Leather Processing Machine Operator	Elementary certificate (NQF Level 2)
2019-715601	Footwear Cutting Production Machine Operator	Elementary certificate (NQF Level 2)
2019-715602	Footwear Closing Production Machine Operator	Elementary certificate (NQF Level 2)
2019-715603	Footwear Bottom Stock Production Machine Operator	Elementary certificate (NQF Level 2)
2019-715604	Footwear Lasting Production Machine Operator	Elementary certificate (NQF Level 2)
2019-715605	Footwear Finishing Production Machine Operator	Elementary certificate (NQF Level 2)
2019-721901	Product assembler	Occupational certificate (NQF Level 3)
2019-731101	Train driver	Higher certificate (NQF Level 5)
2019-731102	Tram driver	Higher certificate (NQF Level 5)
2019-731201	Railway signal operator	Intermediate certificate (NQF Level 3)
2019-731202	Train controller	National certificate (NQF Level 4)
2019-733101	Bus driver	Professional driving permit (no equivalent NQF level)
2019-734101	Agricultural mobile plant (equipment) operator	Occupational certificate (NQF Level 4)
2019-734212	Railway track master	National certificate (NQF Level 4)

** indicates that an occupation has more than 500 unemployed graduates across the country according to the Employment Services South Africa database, as of 14 September 2020.*

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9. ANNEXURE A: SCARCE AND/OR CRITICAL SKILLS AT A LECTURER LEVEL

The following list has been constructed from inputs received from universities that were requested to provide information to USAf in respect of lecturer positions that have been challenging to fill. Faculties and fields that have experienced ongoing challenges are listed below.

1. Accounting and Informatics	• Accounting (CA, SA) • Actuarial Science • Auditing • Financial Accounting • Financial Planning – Certified Financial Planner with academic qualifications • Financial Econometrics and Technical Analysis • Financial Management • Entrepreneurship • Management Accounting
2. Agricultural, Environmental & Natural Sciences	• Agricultural Economist • Agricultural Engineering • Agricultural Policy Development • Agronomy: Weed Science • Analytical Chemists and Hydro metallurgists • Animal Scientist • Bioinformatics • Bio-informatics • Crop Science • Data analytics / Statistics / Biometry • Dendrochronology • Dairy Science • Disaster Management • Entomology • Earth System Science • Economic Geology • Exposure Biology • Epidemiology/Food Microbiology • Food Engineering • Food Scientist • Food Safety • Forest Planner • Food processing and storage technology • Forest Resource Management and Planning • Genetics: Applied plant breeding

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	• Geology • Geography • Ground Water Hydrology • Hydrogeology • Mathematics • Mathematical Statistics • Meat Science • Microbiology and biochemistry • Mining Geology • Molecular Biophysics • Natural Resource Economics • Nematology • Physics • Plant Science • Plant Breeding • Plant Pathology, especially Epidemiology • Plant taxonomy and systematics • Plant Ecology • Plant Sciences • Statistics • Soil Science • Software developers (Agricultural) • Structural Biology • Surface Process Geochemistry • Surface and Soil Water Hydrology • Risk analyst • Veterinary Science • Viticulturist • Zoology: o Aquatic Scientist o Animal Scientist o Biological Scientist o Ecological Scientist
3. Arts – Design & Social Sciences	• Arts entrepreneurship • Communication and Media • Criminology • Geography and Environmental studies: o GIT Geomatics, o Urban and Regional Planners Professionally registered o Geographical Information Systems o Environmental Epidemiology • Graphic Design • Fashion Design • Fashion & Textile • Information Science: o Artificial Intelligence o Data Science

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	○ Cybersecurity and Cyberwarfare ○ Socio-Informatics • Interior Design • Journalism, Film & Television • Languages: ○ Ancient & classical languages ○ Afrikaans and Dutch ○ African Languages and Culture ○ Foreign languages (Chinese, French, German, Dutch) ○ General Linguistics and Modern Languages ○ Language acquisition in Afrikaans ○ Linguistics Literature, Heritage and Culture ○ Theory of translation and interpretation ○ Theory of lexicography • Library and Information Science • Music: ○ Music: strings players (e.g. Odeion Strings Quartet ○ Ethnomusicology experts (especially African music, essential for the renewal of the curriculum) ○ Music in the fields of Music Technology and Music Therapy and Community Music • Political Science / International Relations • Sociology: ○ Social Science research methods and particularly quantitative data analysis ○ Monitoring and evaluation specialists, Science policy analysts • Visual Arts: ○ Digital production and/or graphic design ○ Communication and Media ○ Applied Virtual/augmented Reality

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4. Business Studies	• Business Innovation • Change Management • Corporate governance • Development Finance • HR Information Systems and Technology • Entrepreneurship Management • Financial planning • Finance/Investment • Investments • Local governance • International Business • Operations Management: Productivity, • Ergonomics, Operations Management • Project Management • Responsible Leadership • Safety Management • Technology Management
5. Commerce	• Information Systems • Macroeconomic • Microeconomic • Professorial staff in Accounting • Senior staff in Actuarial Science • Organisational psychology • Tax
6. Economics	• Behavioural and experimental economics • Cliometrics • Data Analytics • Econometrics • Environmental economics • Health economics • Industrial Policy • International trade • Industrial organisation • Macroeconomics • Political Economy
7. Education	• Accounting Education • African Languages • Afrikaans • Aeronautical Engineering • Chemistry Education • Critical Management Education • Curriculum Studies • Early Childhood Care and Education (ECCE) • Educational Psychology

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	• Education Research • English (in Faculty of Education) • Geography • Higher Education Studies, especially Higher Education Leadership; Educational Finance and Student Affairs. • Linguists – formal, forensic, digital • Mathematics Education • Mechanical Engineering • Mechatronics • Medical Laboratory Sciences: in disciplines such as Clinical, Chemistry, Cytology, Histology • Methodology/Health/Sport/Physical Education and or Sports Coaching • Movement Education • Music (specialised) • Physical Science • Technology (Civil, Mechanical & Electrical) • Science (Biology, Life science, Chemistry & Physics) • Physics Education • Science and Technology Education • Special Education • Social Sciences Education
8. Management Sciences	• Administration and Economics Management Actuarial Science • Chartered Accountants • Financial Risk Management • General Economics • Hospitality • Information Systems • Logistics Management • Macro and Micro Econometrics • Management • Mineral Economics • Operation management • Project Management, • Statistics: o Mathematical Statistics (including Distribution theory) o Statistical modelling, inference o Biostatistics / Biometrics including Spatial o Statistics/geostatistics and survival analysis o Extreme value theory

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	○ Statistical Process control ○ Statistics of Data Science and Machine Learning • Supply chain management (SCM) • Transport Economics
9. Engineering and the Built Environment **Science Engineering and Technology**	• Agricultural Engineering • Architecture • Bio and Water Engineering • Biomedical engineering • Civil Engineering ○ Transport Engineering ○ Structural Engineering ○ Urban Engineering ○ Geotechnical Engineering ○ Water Resource Engineering ○ Construction Engineering ○ Quantity surveying • Chemical Engineering: ○ Bioprocessing Engineering ○ Biochemical Engineering ○ Biomolecular Engineering ○ Process modelling ○ Simulation Engineering • Clinical Engineering • Computer Engineering • Construction Management • Construction Project Management • Control engineering • Corrosion • Data Science • Digital Construction Technology • Data Engineering • Economic geology • Electrical Engineering • Electronics Engineering • Electrical Power Engineering • Energy Engineering • Engineering Management • Environmental Engineering • Explosive Engineering (Explosive Rock Engineering) • Facilities Management • Geotechnical Engineering • Geomatics: ○ Mine Surveying ○ Mineral Resources Management ○ Mineral Economics ○ Photogrammetry ○ Geostatistics • Geohydrologists and Water Resource Scientist

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	• Geostatistics (Mineral Resources & Reserves Evaluation) • Geotechnical Engineering • High voltage engineering • Hydrometallurgy • Industrial Engineering • Instrumentation Engineering • Intelligent Systems • Jewellery Design • Land Surveyor • Materials Engineer • Mechatronics Engineering • Mechanical Engineering • Metallurgical Engineering • Mineral Economics • Mining Engineering • Mining Surveying • Mine Environmental Engineering • Operation Management • Petroleum Engineering • Physical Metallurgy • Planning Programme • Power and energy • Process and Control Engineering • Production Engineers • Property Valuation and Management – Valuers registered with the South African Property Valuers Profession • Property Studies • Rock Engineering (Rock Mechanics or Geotechnical Engineering) • Pyrometallurgy • Quantity Surveying • Reactor Design • Real Estate and Property Studies • Structural Engineering • Technology • Telecommunication Engineering • Town and Regional Planning • Transportation Engineering • Urban and regional planning • Ventilation Engineering • Water Engineering
10. Food Service Management	• Dietetic
11. Health Sciences	• Pharmacology • Clinical Pharmacy • Psychology • Industrial Psychology

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12. Humanities	• African Languages • Anthropology • Biology Education • Chemistry Education • Clinical psychology • History • International Relations • Leadership • Local Languages Education • Philosophy • Research Psychologists • Political Studies • Sign Language Linguistics • Sociology • Social Work
13. Information and Communications Technology	• Analysis and projection • Applied Virtual/augmented Reality • Artificial Intelligence • Big data analytics; filtering • Business Information Systems • Business and Systems Analysts • Cloud Computing • Cheminformatics • Computer Forensics • Computer Network Professionals • Computer Science • Cryptocurrency • Cyber Security • Database and Systems Administrators • Data Science • Digital government • Digital Media in the fields of Game Design and Animation and Interactive Media • Digital Platform Business Models • Disaster informatics • Enterprise Architecture • Expert Systems • Cheminformatics • Health informatics • Infopreneurial skills • ICT and Data Science - all fields • ICT Security Specialists • ICT Support and Computer Science • Internet of Things – 4IR skills • Information System & Strategy • IS Auditing • IS Development • IS Security/Cyber Security • ITS

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