



HEALTH & ENVIRONMENTAL SCIENCE

SUBJECT SECTION GUIDE FOR GRADE 9 - 12 • 2023

REQUIREMENT FOR GRADE 10 SUBJECT CHOICE:

This document is created to assist grade 9 to 12 learners and LO teachers to know which subject combination is needed for the fields of study we are offering at CUT. Languages will always be compulsory for all the following fields of study in Central University of Technology, Free State.

| SUBJECT COMBINATION | FIELD OF STUDY CAREER | APS | DURATION OF PROGRAMME | CAREER OPPORTUNITIES | EXAMPLES OF COMPANIES |
|---|---|-----------|-----------------------|--|--|
| FACULTY OF HEALTH & ENVIRONMENTAL SCIENCE | | | | | |
| Maths/ Physics/ Life Science/English | Clinical Technology | 30 points | 4 years | Qualified Clinical Technologists are employed in a government- or private practice selecting one of the seven specialisation areas: • Cardiology • Pulmonology • Critical care • Nephrology • Reproductive • Biology • Perfusion • Neurophysiology | • Government and private healthcare sectors: - Government hospitals and clinics - Private hospitals and clinics • Research Institutions |
| Students should have any two of the following subjects: Agricultural Science, Life Sciences, Physical Science, Mathematics/Mathematical Literacy, Accountancy or Economics | Agricultural Management | 27 points | 3 years | • Farming/Farm manager • Coops • Agric. Scientists • Research technicians • Banks • Seed & amp; fertilizer companies • Crop insurance • Teaching • Own business • Animal feed marketing • Feedlot managers • Sheep & wool consultants • SA studbook • Breeders' societies • Poultry industry • Livestock marketers | • OVK, GWK • ARC • Land Bank & Standard Bank • Dairy Bell • Pannar, Omnia, Sidi Perani, Pioneer du Pont • Santam Agri • SA Feed phosphates, Molatek, Voermol SA • Beefmaster, Sparta • NWKV, BKB, CMW • Karoo Oche |
| Physical or Life sciences | Somatology (incl. Therapeutic services) | 27 points | 3 years | • Beauty or spa therapist • Therapist on cruise ships • Assistant to medical practitioners like dermatologists and plastic surgeons • Spa manager • Sales representative in health and beauty • Researcher and/or lecturer in the field | • Medical Aesthetics and Skin care • Slimming and body wellness • Alternative therapies e.g. reflexology and sports massages • Remedial therapies e.g. oncology - and manual lymph drainage massages |
| Maths/ Physics/ Life Science/English | Medical Laboratory Sciences | 30 points | 4 years | • Clinical Analysis : Chemistry Immunology Drug testing Hematology Microbiology Immunohematology Molecular diagnostics Histopathology Cytopathology • Public Health Crime laboratory/forensics Epidemiology Environmental health Administration Red Cross | Qualified Biomedical Technologists are employed in private pathology practices: • South African National Blood Service (SANBS) • National Health Laboratory Service (NHLS) • Medical Research Council (MRC) and other disciplines such as pharmaceutical companies • Opportunities also exist to become involved in research and training at universities • South African National Defense Force (SANDF) • A qualified Biomedical Technologist can also run his/her own diagnostic pathology laboratory |
| Life Science/ Physical Sciences | Dental Assistant | | | • Dental assistance | • Private and Public Sector • Military • Medical aid companies • Dental product companies |
| Maths/ Physics/ Life Science / English | Environmental Health | 30 points | 4 years | • Environmental health practitioner • Meat inspector • Waste management officer • Occupational health and safety officer • Port Health officer | • Municipalities • Department of Health • Abattoirs • Construction companies • Private and public sectors |
| Maths/ Physics/ Life Science / English | Radiography in Diagnostics | 30 points | 4 years | • Radiographers in diagnostic, therapy, nuclear medicine and ultrasound • Representatives • Lecturers • Researchers | • X-ray departments of private and public hospitals in South Africa and abroad • Representatives for companies providing x ray equipment • Universities |

All programmes are offered at Bloemfontein Campus.

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|---|---|--|--------------------------------------|---|--|
| FACULTY OF ENGINEERING, BUILT ENVIRONMENT, AND INFORMATION TECHNOLOGY | | | | | |
| For admission to the Dip. Eng. Tech.: Mathematics (50%); Physical Sciences (50%); English (40%) LIFE ORIENTATION IS COUNTED AS 1 POINT. For Admission to the B. Eng. Tech.: Mathematics (60%); Physical Sciences (50%); English (50%) MATHEMATICAL LITERACY WILL NOT BE ACCEPTED IN ALL ENGINEERING DISCIPLINES. | CIVIL ENGINEERING Diploma in Engineering Technology in Civil Engineering Bachelor of Engineering Technology in Civil Engineering | 27 points 32 points | 2 Years 3 Years | Technologist, Technician, Engineer in the fields of: Construction and building industry; Consulting engineering industry; Research institutions; Entrepreneurial enterprises. | Governmental departments; Local authorities & municipalities; Water boards; National Road & transportation agencies (SANRAL) |
| Minimum score of 32 is required to be accepted in the programme provided the candidate has met the minimum requirements for compulsory subjects. Minimum pass mark of 50% is compulsory in English, Mathematics and Physical Sciences. Please note that Mathematical Literacy will not be accepted. Marks from accredited TVET colleges are accepted to substitute low marks obtained from National Senior Certificate (Matric). Only seven (7) subjects can be used to calculate the student's APS. English, Maths, Science and Life Orientation are compulsory, and Life Orientation is counted as 1 point. | CONSTRUCTION MANAGEMENT Higher Certificate in Construction Bachelor of Construction in Construction Management Bachelor of Construction in Health and Safety Management | 27 points 32 points 32 points | 1 Year 3 Years 3 Years | Construction Manager | Governmental departments. Local authorities and municipalities. Contractors Consultants |
| For admission to the Dip. Eng. Tech.: Mathematics (50%) Physical Sciences (50%) English (40%). Mathematical Literacy is not accepted. | ELECTRICAL ENGINEERING Diploma in Engineering Technology in Electrical Engineering Bachelor of Engineering Technology in Electrical Engineering | 27 points 32 points | 2 Years 3 Years | Technologist, Technician, Engineer in the fields of: Automation Mining Transportation Repairs & Maintenance Medical electrical technicians Sound and stage Data programmer App programmer Communication technicians | Rockwell automation; Siemens; ABB; Schneider; Allen Bradley, Rs; Honeywell Any hospital or medical facility Theatres or live events MTN; VODACOM; TELKOM; Space agency; TV |
| For admission to the Dip. Eng. Tech.: Mathematics (50%); Physical Sciences (50%); English (40%) For admission to the B. Eng. Tech.: Mathematics (60%); Physical Sciences (50%); English (50%) Mathematical Literacy is not accepted. | MECHANICAL ENGINEERING Diploma in Engineering Technology in Mechanical Engineering Bachelor of Engineering Technology in Mechanical Engineering | 27 points 32 points | 2 Years 3 Years | Technologist, Technician, Engineer in the fields of: Maintenance in mining, steel production, petrochemical, manufacturing and power generation. Project engineer Develop, design and testing of mechanical devices. | Power generation e.g., ESKOM and renewable energy companies Mining e.g., BHP Billiton, Anglo American Steel production e.g., Columbus Stainless Steel, Arcelor Mittal. Petrochemical e.g., Sasol, PetroSA Manufacturing e.g., Ford, Nissan, Toyota, Denel |
| Minimum score of 32 is required to be accepted in the programme provided the candidate has met the minimum requirements for compulsory subjects. Minimum pass mark of 50% is compulsory in English, Mathematics, and Physical Sciences. Please note that Mathematical Literacy will not be accepted. Marks from accredited TVET colleges are accepted to substitute low marks obtained from National Senior Certificate (Matric). Only seven (7) subjects can be used to calculate the student's APS. English, Maths, Science, and Life Orientation are compulsory, and Life Orientation is counted as 1 point. | QUANTITY SURVEYING Bachelor of Construction in Quantity Surveying | 32 points | 3 Years | Quantity Surveyor | Governmental departments. Local authorities and municipalities Contractors Consultants. |
| For admission to the Dip. Eng. Tech.: Mathematics (50%) Physical Sciences (50%) English (40%) For admission to the B. Eng. Tech.: Mathematics (60%) Physical Sciences (50%) English (50%) Mathematical Literacy is not accepted. | RENEWABLE ENERGY Higher Certificate in Renewable Energy Technologies | 27 points | 1 Year | Technicians will be able to assist technologists and engineers in the installation, commissioning and maintenance of RET systems. | Power generation companies. ESKOM Municipalities Independent power producers. |
| A minimum mark of 40% in Mathematics or 60% in Mathematical Literacy or Information Technology. For English, a minimum mark of 50% | INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) Higher Certificate in Information Technology Diploma in Computer Networking Diploma in Information Technology | 27 points 27 points 27 points | 1 Year 3 Years 3 Years | Technicians will be able to assist technologists and engineers in the installation, commissioning and maintenance of RET systems. IT Network Technician/Technologist; IT Network Analyst/Developer/Manager; IT Network Infrastructure Analyst/Developer/Manager Engineer; IT Network Project Leader; Software Analyst/Developer/Manager; System Analyst/Developer/Manager; Programming Analyst/Developer/Manager; Web Analyst/Developer/Manager; Mobile Application Analyst/Developer/Manager; Database Analyst/Developer/Manager; IT Project Leader. | Any company, business, industry, governmental institution with a network. |
| Mathematics (50%) Physical Sciences (50%) Life Sciences/Physiology (50%) English (50%). | HYDROLOGY & WATER RESOURCES Bachelor of Science in Hydrology and Water Resources Management | 28 points | 3 Years | Consulting engineering /environmental industry. Mining industry; Research institutions; Entrepreneurial enterprises. | Governmental departments; Local authorities and municipalities; Water boards. |
| Senior Certificate (SC), National Senior Certificate (NSC) or the National Certificate (Vocational) (NCV) with appropriate subject combinations and levels of achievement as defined below: - a minimum of 40% in grade 12 English, - a minimum of 50% in grade 12 Physical Science/Technical Science and - either a minimum of 30% in grade 12 Mathematics/Technical Mathematics or a minimum of 40% in Mathematics/Technical Mathematics in grade 11 and a minimum of 60% in grade 12 Mathematical Literacy | MATHEMATICS FOR ENGINEERING TECHNOLOGY Higher Certificate in Mathematics for Engineering Technology | Minimum Senior Certificate (SC), National Senior Certificate (NSC) or the National Certificate (Vocational) (NCV) with appropriate subject combinations and levels of achievement. | 1 Year | Gain access to STEM-related qualifications at universities. After completion, these students may continue on to engineering and other STEM-related programmes. Gain access to STEM-related qualifications at universities. After completion, these students may continue on to engineering and other STEM-related programmes. Graduates of this programme may also consider working as a research assistant. | |

ENGINEERING, BUILT ENVIRONMENT & INFORMATION TECHNOLOGY

All programmes are offered at Bloemfontein Campus, except for Diploma in Information Technology & Higher Certificate in Information Technology (Bloemfontein & Welkom Campus).



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MANAGEMENT SCIENCE

| SUBJECT COMBINATION | FIELD OF STUDY CAREER | APS | DURATION OF PROGRAMME | CAREER OPPORTUNITIES | EXAMPLES OF COMPANIES |
|---|--|---|--------------------------------------|--|-----------------------|
| FACULTY OF MANAGEMENT SCIENCE | | | | | |
| Before 2007: Accounting: • SG: B • HG: C 2008 and thereafter: Accounting: 60% Mathematics: 40% Maths Lit: 60% | Bachelor of Management Sciences in Accountancy | 27 points | 4 years | Professional accountant practising in commerce, industry, academia, and the public sector. The qualification also allows students access to the Internal Audit Technician (IAT) and Professional Internal Auditor (PIA) programs, giving access to lifelong professional development and support, through the opportunity to take up full membership with the IIA (SA), as the foremost institute for internal auditors in South Africa. | Private & public |
| Before 2007: Accounting: • SG: C • HG: D Accounting: 50% Mathematics: 30% Maths Lit: 50% | ECP in Accountancy | 27 points | 1 year plus 4 years of mainstream | | |
| Before 2007: Accounting: • SG: B • HG: C 2008 and thereafter: Accounting: 60% Mathematics: 40% Maths Lit: 60% | Bachelor of Management Sciences in Internal Auditing | 27 points | 4 years | | |
| Before 2007: Accounting: • SG: C • HG: D Accounting: 50% Mathematics: 30% Maths Lit: 50% | ECP in Internal Auditing | 27 points | 1 year plus 4 years of mainstream | | |
| No subject combination specified | Hospitality Management ECP in Hospitality | 27 points 23 points | 3 years | Hotel manager, front-office manager, banqueting manager, food and beverage manager, restaurateur, caterer, entrepreneur, guest-house manager or owner, coffee shop manager or owner, chef, and many others. | Private & public |
| No subject combination specified | Human Resources Management | 27 points | 3 years | Human resources development practitioner, human resources manager, Employment/Labour relations specialist, Human Resources Management (HRM) or Human Resources Development (HRD) specialist | Private & public |
| No subject combination specified | Marketing | 27 points | 3 years | Marketer/Salesperson, Advertising/ Promotion manager, Marketing Consultant, Marketing Manager, Sales Manager, Export Agent, International division of banks, Export manager | Private & public |
| No subject combination specified | Office Management and Technology | 27 points | 3 years | Secretary, data processor, administrative assistant, management assistant, personal assistant, legal secretary, personnel officer, administrative officer, administrative office manager. | Private & public |
| No subject combination specified | Public Management | 27 points | 3 years | Public sector positions in the fields of General Management, Financial Management, Human resources Management and the political milieu (i.e. national, Regional and Local Government). Owing to the wide variety of duties and activities in the public sector, public functionaries are employed at institutions throughout the country. There are several fields of interest, including auditing, financial and procurement management, human resources management, office management, project management, and governmental relations. | Private & public |
| No subject combination specified | Tourism Management | 28 points | 3 years | Tour operator, travel agent, different positions in the airline industry, tourism marketer, event and conference organiser/manager, car-rental agent, tourism official, government employee or teacher. Guesthouses, hotels, lodges, resorts, guest farms and nature reserves also offer employment opportunities. | Private & public |
| No subject combination specified | Community Development Work | 26 points - Candidates with a CUT score lower than 26 points may be subject to a selection process based on a minimum number of points to be scored on the CUT scoring scale. | 1 year fulltime 2 years part time | The aim of the programme is to provide qualified students with the necessary skills to integrate generic community development knowledge and skills in an effective manner, in order to promote ethical and professional community development work in practice. The range of subjects in the qualification will allow the student to gain knowledge relating to community development worker careers in a wide range of sectors, such as sustainable community development (administration); rural and urban development, local government, Integrated Development Planning (IDP) and Local Economic Development (LED) initiatives; administration and governance of sustainable development projects; human settlements; and community health matters, such as HIV/AIDS. | Private & public |

All programmes are offered at Bloemfontein and Welkom Campus, except for Hospitality Management, ECP in Hospitality, Tourism Management & Community Development Work (Bloemfontein Campus).

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|---|---|-----------|-----------------------|---|---|
| FACULTY OF HUMANITIES | | | | | |
| Languages - A 60% pass rate in the two official regional languages, which should be your home language and first additional language, e.g., Afrikaans, English, or Sesotho. | Languages Practice and Media Studies | 27 points | 3 years | Language Officer, Translator, Communications Officer, Training Officer, Journalist and Public Relations Officer | Public & Private entities / Media & Broadcasting Industries Language Practitioner |
| Art & Design / Visual Art/ Design Theory/ Languages - 50% pass mark in all school subjects. - Prospective students are required to submit a prescribed Portfolio and to undergo a selection test and interview. - Art & Design, Visual Art, Design Theory are recommended. | Design and Studio Art | 27 points | 3 years | Fashion, Advertising, Communications, Packaging, Jewellery, Illustration and Multi-Media Visual Arts | Public & Private entities / Artist |
| NSC with endorsement for admission to a bachelor's degree / matriculation exemption. - 50% in Mathematics - Computer Applications Technology (CAT) is recommended | B. Ed (SP & FET): Computer Science | 27 points | 4 years | Teacher or lecturer at a secondary school or FET college. | Public & Private schools / colleges |
| NSC with endorsement for admission to a bachelor's degree / matriculation exemption. 50% in Accounting and Economics / Business Studies | B. Ed (SP & FET): Economic & Management Science | 27 points | 4 years | Teacher or lecturer at a secondary school or FET college. | Public & Private schools / colleges |
| NSC with endorsement for admission to a bachelor's degree / matriculation exemption. - 50% in Mathematics | B. Ed Foundation Phase Teaching | 27 points | 4 years | Qualified educators in primary schools | Public & Private schools / colleges |
| NSC with endorsement for admission to a bachelor's degree / matriculation exemption. - 50% in English and one more language. | B. Ed (SP & FET): Language Education | 27 points | 4 years | Teacher or lecturer at a secondary school or FET college. | Public & Private schools / colleges |
| NSC with endorsement for admission to a bachelor's degree / matriculation exemption. - 50% in Mathematics and Physical Science | B. Ed (SP & FET): Mathematics | 27 points | 4 years | Teacher or lecturer at a secondary school or FET college. | Public & Private schools / colleges |
| NSC with endorsement for admission to a bachelor's degree / matriculation exemption. - 50% in Mathematics, Physical Science and Life Science | B. Ed (SP & FET): Natural Science | 27 points | 4 years | Teacher or lecturer at a secondary school or FET college. | Public & Private schools / colleges |
| NSC with endorsement for admission to a bachelor's degree / matriculation exemption. - 50% in Mathematics / Engineering Graphics and Design. - Technical Drawing or Engineering Graphics and Design is recommended. | B. Ed (SP & FET): Technology | 27 points | 4 years | Teacher or lecturer at a secondary school or FET college. | Public & Private schools / colleges |

All programmes are offered at Bloemfontein and Welkom Campus, except for Design Studio Art & B. Ed (SP & FET): Technology (Bloemfontein Campus).



Vision 2030

The Central University of Technology. Shaping the future through innovation as a leading African University of Technology.

FACULTY OF HUMANITIES