N Dip: Geology

Admission requirements:
The following are the minimum academic requirements to enroll for the National Diploma programme In addition to the senior certificate - general and vocational certificate a candidate must adhere to the specific requirements for the programme.

Specific requirements are:

- Adequate achievement (i.e. a rating of 4 or more) in English, Physical Science and Mathematics.
- Applicants who score 49 or more points according to the Admission Points Score (APS) will be considered for enrolment subject to the availability of space in the programme.

Highly recommended subject:
Life Sciences.

Recommended subject:
Geography.

Duration of Course:
Three years of full-time studies - five semesters of formal University training, one semester of experiential learning. Intake January only.

Course Content:
Subjects covered in the course include: Chemistry, Physics, Mathematics, Computer Skills, Entrepreneurial skills, as well as the specialized subjects: Statistics, Mineralogy, Geotechniques, Structural Geology, Applied Geology, Geology, Petrology, Geophysics, Geotechnology, Industrial Geology, Engineering Geology, Hydrogeology, Mining and Exploration Geology.

B Tech Geology

Minimum Admission requirements:
N Dip in Geology or equivalent qualification.

Duration of program:
A minimum of one year and a maximum of two years. Re-registration must follow on from the previous years study and is continuous.
The program is presented as a block course where students attend lectures during a block week usually once a month. Attendance is compulsory and students must register for their Geology Project in addition to any four of the following subjects: Engineering Geology, Hydrogeology, Mining and Exploration Geology, Geophysics and Business Management.

Master's Degree in Technology: Geology

Minimum Admission Requirements:
Bachelor's Degree in Technology: Geology or an equivalent qualification.

Duration:
A minimum of one year and a maximum of three years. A student must re- register for this course every year.

Structure:
The course consists of a research project that must be recorded in the form of a dissertation.

Doctorate in Technology: Geology

Minimum Admission Requirements:
Master's Degree in Technology: Geology or an equivalent qualification.

Duration:
A minimum of two years and a maximum of five years. A student must re- register for this course every year.

Structure:
The course consists of a research project that must be recorded in the form of a thesis.

Career Opportunities:
Geotechnologist, Geologist, Geophysicist, Geohydrologist, Engineering Geologist, Economic Geologist, Mining Geologist, Exploration Geologist, Geological Consultant.

Career Profile:
Geology is the study of the earth, its origin, its structure, its composition and its behavior, in particular that of its crust or uppermost portions. An aptitude for mathematics and the natural sciences is a prerequisite. An interest in earth sciences, stimulated by exposure to physical geography, will be advantageous. Certain members of this profession will work primarily in the unspoilt veld, while some will operate in a mining environment; others will prefer working in a laboratory.
N Dip: Environmental Sciences.

N Dip: Environmental Sciences

Admission requirements:
The following are the minimum academic requirements to enroll for the National Diploma programme In addition to the senior certificate - general and vocational certificate a candidate must adhere to the specific requirements for the programme.

Specific requirements are:

- Adequate achievement (i.e. a rating of 4 or more) in English, Physical Science and Mathematics.
- Applicants who score 49 or more points according to the Admission Points Score (APS) will be considered for enrolment subject to the availability of space in the programme.

Highly recommended subject:
Life Sciences.

Recommended subject:
Geography.

Duration of Course:
Three years of full-time studies: five semesters of formal University training and one semester of experiential learning. Intake January only.

Course Content
Subjects covered in the course include: Environmental Management, Environmental Resources, Communication skills, Chemistry, Geology, Mathematics, Entrepreneurial skills, Computer Skills, Microbiology, Applied Geology, Geotechnology, Environmental Chemistry, Environmental Economy, Environmental Geohydrology, Industrial Processes, Industrial Environmental Practice, Project: Environmental Technology, Integrated Catchment Management, Water Quality Management.

B Tech: Environmental Science

Minimum Admission requirements:
N Dip in Environmental Sciences or equivalent qualification

Duration of course:
A minimum of one year and a maximum of two years. Re-registration must follow on from the previous years study and is continuous.

Course content:
The course is presented as a block course where students attend lectures in a block week usually once a month. Attendance is compulsory and students must register for their Environmental Technology Project in addition to any four of the following subjects:

Environmental Management, Environmental Chemistry, Environmental Geohydrology, Environmental Rehabilitation, Environmental Resources, Geotechnology, Water Quality Management and Integrated Catchment Management

Master's Degree in Technology: Environmental Management

Minimum Admission Requirements :
Bachelor's Degree in Technology: Environmental Sciences or an equivalent qualification.

Duration:
A minimum of one year and a maximum of three years. A student must re-register for this course every year.

Structure:
The course consists of a research project that must be recorded in the form of a dissertation.

Doctorate in Technology: Environmental Management

Minimum Admission Requirements:
Master's Degree in Technology: Environmental Sciences or an equivalent qualification

Duration:
A minimum of two years and a maximum of five years. A student must re- register for this course every year.

Structure:
The course consists of a research project that must be recorded in the form of a thesis.

Career Opportunities:
Environmental Officer, Environmental Technician, Environmental Co-coordinator, Environmental Scientist. Prospective employers are government departments, mining houses, and environmental consultant agencies.

Career Profile:
This training programme teaches students to identify, analyse and solve environmental problems (pollution, environmental degradation, acid rain, environmental disturbances etc.) from a scientific, management, legislative and social science angle. In short, students are trained to approach environmental problems holistically.

Research Programmes in the Department :
Current research programmes funded by NRF, Laser Centre, government, and industry include:

Waste and Wastewater Management:
Removal of heavy metals from aqueous solution using maize tassels and aminopolycarboxylic acid-type cellulose interaction of heavy metals with dead cells of fungi.

Pollution Measurement:
Speciation of Manganese in street dust in Pretoria area, South Africa
Determination of endocrine disrupting compounds in the Jukskei River
Quantification of brominated flame retardants in landfill leachates
Air dispersion modeling and monitoring of chlorine emissions

Toxicology:
Application of supercritical fluid in the extraction of organochlorine compounds in human breast milk
Quantification of fluoride levels in birds and the impact on wild mammal populations in the Pilanesberg

Environmental Management:
Implementing environmental management systems for companies.

Life Cycle Assessment:
Life Cycle analysis of Zirconium

Risk Assessment:
Risk assessment of plasma conversion technology

Community ecology:
Impact of habitat transformation of bird and invertebrate population in highveld grasslands

International Exchange Programmes:
The Department has an exchange agreement with Brandenburg Technical University (BTU) in Cottbus, Germany. Students as well as lecturers from TUT travel to BTU and vice versa.

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Faculty of Science

Department of Environmental, Water and Earth Sciences

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