University of Pretoria Yearbook 2023

BScHons (Engineering and Environmental Geology) (Engineering Geology) (02240375)

Department	Geology
Minimum duration of study	1 year
Total credits	135
NQF level	08

Admission requirements

1. BSc (Geology) degree (or equivalent) **or** BSc (Engineering and Environmental Geology) degree (or equivalent) **or** relevant bachelor's degree
2. A weighted average of at least 60% for each of the following modules (or equivalent) in applied geology at second-year and third-year level:

- Soil mechanics,
- Rock mechanics,
- Engineering geology

General information

University of Pretoria Programme Qualification Mix (PQM) verification project

The higher education sector has undergone an extensive alignment to the Higher Education Qualification Sub-Framework (HEQF) across all institutions in South Africa. In order to comply with the HEQSF, all institutions are legally required to participate in a national initiative led by regulatory bodies such as the Department of Higher Education and Training (DHET), the Council on Higher Education (CHE), and the South African Qualifications Authority (SAQA). The University of Pretoria is presently engaged in an ongoing effort to align its qualifications and programmes with the HEQSF criteria. Current and prospective students should take note that changes to UP qualification and programme names, may occur as a result of the HEQSF initiative. Students are advised to contact their faculties if they have any questions.

Curriculum: Final year

Minimum credits: 135

Core credits: 135

Core modules

Site investigation project 713 (GTX 713)

Module credits	30.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	5 practicals per week (8 weeks)
Language of tuition	Module is presented in English
Department	Geology
Period of presentation	Year

Module content

Field work which includes mapping, soil and rock description, joint surveys, borehole testing, water sampling, interpretation of laboratory test results and compilation of site investigation reports. Larger projects of at least two months of fieldwork and report writing which involves surface and underground studies, mapping, drill core logging, discontinuity surveys, rock mass classification, stability analyses, interpretation of laboratory tests or pollution studies including water and/or soil sampling, interpretation of laboratory tests, development of a rehabilitation plan or groundwater model and compilation of a report. Compulsory attendance at conferences, short courses, specialist lectures, visits to construction sites and fields excursions.

Engineering geology of South Africa 714 (GTX 714)

Module credits	20.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	2 practicals per week (5 weeks), 4 lectures per week (5 weeks)
Language of tuition	Module is presented in English
Department	Geology
Period of presentation	Year

Module content

Overview of site investigation phases; site investigation techniques; soil profiling and rock core description. Literature study and compilation of reports on the stratigraphy of South African rock types and engineering problems of rocks and soils within different stratigraphic units and climatic regions.

Environmental management and risk assessment 716 (GTX 716)

Module credits	20.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	2 practicals per week (3 weeks), 4 lectures per week
Language of tuition	Module is presented in English
Department	Geology
Period of presentation	Year

Module content

Principles of integrated environmental management; environmental impact assessment; environmental management systems (ISO 14000 series); water resource management; environmental legislation; site investigation guidelines; natural hazard risk assessment; seismicity; project management and professional business practice.Geological models and software.

Rock engineering 722 (GTX 722)

Module credits	20.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	2 practicals per week (5 weeks), 4 lectures per week (5 weeks)
Language of tuition	Module is presented in English
Department	Geology
Period of presentation	Year

Module content

Mapping, description (core logging and discontinuity surveys) and classification of rock masses; engineering properties of rock masses including deformability, shear strength of discontinuities, in situ strength and permeability of rock masses; effects, theoretical derivation and practical measurements of in situ stresses.

Engineering applications 723 (GTX 723)

Module credits	15.00
NQF Level	08
Prerequisites	GTX 722
Contact time	2 lectures per week (5 weeks), 2 practicals per week (5 weeks)
Language of tuition	Module is presented in English
Department	Geology
Period of presentation	Year

Module content
The influence of geology on construction projects with specific reference to the requirements of dams, tunnels, slopes, waste disposal and urban development.

Fluid mechanics in geological media 725 (GTX 725)

Module credits	20.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	2 practicals per week (5 weeks), 4 lectures per week (5 weeks)
Language of tuition	Module is presented in English
Department	Geology
Period of presentation	Year

Module content

Water cycle and distribution of water in the Earth's crust. Single phase flow and multiphase flow; saturated and unsaturated flow. Flow through porous and fractured media. Quantification of hydrological parameters. South African hydrostratigraphy. Drainage and dewatering.

Applied geological field methods 728 (GTX 728)

Module credits	10.00
NQF Level	08
Prerequisites	No prerequisites.
Contact time	5 practicals per week (2 weeks)
Language of tuition	Module is presented in English
Department	Geology
Period of presentation	Year

Module content

Practical field-based investigation methods for engineering geological and hydrogeological application; geological mapping.

Regulations and rules

The regulations and rules for the degrees published here are subject to change and may be amended after the publication of this information.

The General Academic Regulations (G Regulations) and General Student Rules apply to all faculties and registered students of the University, as well as all prospective students who have accepted an offer of a place at the University of Pretoria. On registering for a programme, the student bears the

responsibility of ensuring that they familiarise themselves with the General Academic Regulations applicable to their registration, as well as the relevant faculty-specific and programme-specific regulations and information as stipulated in the relevant yearbook. Ignorance concerning these regulations will not be accepted as an excuse for any transgression, or basis for an exception to any of the aforementioned regulations.

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