

# BACCALAUREUS TECHNOLOGIAE: ENGINEERING: CIVIL: GEOTECHNICAL ENGINEERING

Qualification code: BTGO02 - NQF Level 7

Campus where offered: Pretoria Campus (block-mode classes)  
Last year of new intake: July 2019  
Teach-out (phase-out) date: 30 June 2023

Students registered for this qualification should complete their studies according to the teach-out date prescribed for the qualification, subject to the stipulations of Regulation 3.1.11 and 3.1.13 in the Students' Rules and Regulations.

Information on phased-out programmes can be obtained from the TUT website, [www.tut.ac.za](http://www.tut.ac.za).

## CURRICULUM

Consult the 2019 Faculty Prospectus for the full contents of the qualification.

### Please note:

Students must pass eight subjects. A minimum of five compulsory subjects in their particular field of specialisation should be taken, with the balance made up of subjects offered in the other fields of specialisation. Optional/elective subjects taken from the other fields must be closely related/relevant to the qualification. Subjects are offered as determined by the Head of the Department. The total credits of the Level IV subjects may not be less than 0,500.

Students who register for the subject Construction Materials Technology IV are not permitted to register for Asphalt Technology IV or Concrete Technology IV.

## ATTENDANCE

CODE	SUBJECT	CREDIT
<b>FIRST SEMESTER (2022)</b>		
HGE301B	Hydrogeology III	(0,125)
KMT401T	Construction Materials Technology IV	(0,125)
<b>SECOND SEMESTER (2022)</b>		
FDE401T	Foundation Engineering IV	(0,125)
SOI401T	Soil and Groundwater Pollution: Civil IV	(0,125)
<b>FIRST SEMESTER (2023)</b>		
EWD401T	Earthworks Design IV	(0,125)
GEC401T	Geology: Civil IV	(0,125)
<b>SECOND SEMESTER (2023)</b>		
AGM401T	Applied Geomechanics IV	(0,125)
PDE401T	Principles of Dam Engineering IV	(0,125)
TOTAL CREDITS FOR THE QUALIFICATION:		<b>1,000</b>



## SUBJECT INFORMATION (OVERVIEW OF SYLLABUS)

The syllabus content is subject to change to accommodate industry changes. Please note that a more detailed syllabus is available at the Department or in the study guide that is applicable to a particular subject. At time of publication, the syllabus content was defined as follows:

### A

**APPLIED GEOMECHANICS IV (AGM401T)** **1 X 3-HOUR PAPER (OPEN BOOK)**  
*(Subject custodian: Department of Civil Engineering)*  
Soil mechanics: properties of soil, testing, site investigation. Lateral earth support. Buried structures. Ground improvement. In situ tests. Project. (Total tuition time: ± 32 hours)

### C

**CONSTRUCTION MATERIALS TECHNOLOGY IV (KMT401T)** **1 X 3-HOUR PAPER**  
*(Subject custodian: Department of Civil Engineering)*  
Concrete technology, asphalt and bitumen technology, other materials, testing. (Total tuition time: ± 32 hours)

### E

**EARTHWORKS DESIGN IV (EWD401T)** **1 X 3-HOUR PAPER**  
*(Subject custodian: Department of Civil Engineering)*  
Materials selection. Design and construction of embankments. Design and construction of cuttings. Environmental impact control. Problem soils. Compaction equipment and techniques. (Total tuition time: ± 32 hours)

### F

**FOUNDATION ENGINEERING IV (FDE401T)** **1 X 3-HOUR PAPER (OPEN BOOK)**  
*(Subject custodian: Department of Civil Engineering)*  
Shallow and deep foundation design, lateral earth support. (Total tuition time: ± 32 hours)

### G

**GEOLOGY: CIVIL IV (GEC401T)** **1 X 3-HOUR PAPER (OPEN BOOK)**  
*(Subject custodian: Department of Civil Engineering)*  
Advanced engineering geology, rock mechanics, geotechnical instrumentation, geophysical methods. (Total tuition time: ± 32 hours)

### H

**HYDROGEOLOGY III (HGE301B)** **1 X 3-HOUR PAPER**  
*(Subject custodian: Department of Civil Engineering)*  
Basic concepts, the principles of groundwater hydraulics. Pumping tests and the measurement of spring and river flow. Groundwater replenishment and the rudiments of determining groundwater reserves. Hydrochemistry, water quality requirements and an introduction to the quality of South African groundwater. The water-bearing properties of South African rock groups. Geological and geophysical investigations for borehole siting. (Total tuition time: ± 32 hours)

### P

**PRINCIPLES OF DAM ENGINEERING IV (PDE401T)** **1 X 3-HOUR PAPER (OPEN BOOK)**  
*(Subject custodian: Department of Civil Engineering)*  
Geological and foundation considerations, design principles, dam safety, seepage, grouting and drainage, project. (Total tuition time: ± 32 hours)



**SOIL AND GROUND WATER POLLUTION: CIVIL IV (SOI401T)****1 X 3-HOUR PAPER*****(Subject custodian: Department of Civil Engineering)***

Sources of pollution, fluid flow and the transport of solute in porous media, remediation of contaminated groundwater, sanitation of polluted soils. Project. (Total tuition time:  $\pm$  32 hours)

