

# BACCALAUREUS TECHNOLOGIAE: SURVEYING

Qualification code: BTSU18 - 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).

Key to asterisks:

\* Information does not correspond to information in Report 151.

(Deviations approved by the Senate in August 2005 and September 2017.)

\*\* Only GIS401T and GTC101T will be offered in the 2023 academic year.

## CURRICULUM

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

### FIRST OR SECOND SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
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**Students must take the five compulsory subjects plus three additional subjects, which they should select from the remainder of the subjects.**

#### FIRST SEMESTER

GDE401T	Geometric Design IV	(0,097)*	
GIS401T**	Geographic Information Systems IV (Compulsory)	(0,125)	Geographic Information Systems III
GTC101T**	Geomatics Technology*	(0,097)*	
SUR411T	Surveying IV (Compulsory)	(0,167)	Surveying III

#### SECOND SEMESTER

GED401T	Geodesy IV (Compulsory)	(0,167)	
PMN411T	Practice Management IV (Compulsory)	(0,125)	
PUY401T	Project Management: Surveying IV (Compulsory)	(0,125)	
RMD101L	Research Methodology	(0,097)*	
TPN401T	Town Planning IV	(0,097)*	

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

## 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:

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#### GEODESY IV (GED401T)

#### CONTINUOUS ASSESSMENT

*(Subject custodian: Department of Geomatics)*

Introduction to spherical astronomy. Transformation of two-dimensional coordinates. Coordinate systems and rotations in 3D. Terrestrial versus geodetic coordinate systems, geodetic surveying principles. Principles of global navigation satellite systems (GNSS), including global positioning systems (GPS), global navigation satellite systems (GLONASS), Galileo (European Union), Compass/Beidou (China), etc. Gravimetry and gravity field of the Earth. (Total tuition time: ± 200 hours)



**GEOGRAPHIC INFORMATION SYSTEMS IV (GIS401T)****CONTINUOUS ASSESSMENT***(Subject custodian: Department of Geomatics)*

Nature of geo-referenced information. Uses, advantages and disadvantages. Data capturing and manipulation techniques. Presentation and management of information. Applications. (Total tuition time: ± 150 hours)

**GEOMATICS TECHNOLOGY (GTC101T)****CONTINUOUS ASSESSMENT***(Subject custodian: Department of Geomatics)*

Airborne Solution. Office Technology. Aerial Surveying. Point Cloud. (Total tuition time: ± 40 hours)

**GEOMETRIC DESIGN IV (GDE401T)****1 X 4-HOUR PAPER (OPEN BOOK)***(Subject custodian: Department of Civil Engineering)*

Principles and practice of road alignment, environmental impact control, design control and criteria, elements of design (geometric, safety), intersection and interchange design, drainage design, earthworks design, design project. (Total tuition time: ± 32 hours)

**P****PRACTICE MANAGEMENT IV (PMN411T)****1 X 4-HOUR PAPER (OPEN BOOK)***(Subject custodian: Department of Management and Entrepreneurship)*

The behavioural science approach to organisation. Motives and motivation. Some theories and studies of human behaviour, with specific reference to behaviour. Principles and practice of management. (Total tuition time: ± 30 hours)

**PROJECT MANAGEMENT: SURVEYING IV (PUY401T)****CONTINUOUS ASSESSMENT***(Subject custodian: Department of Geomatics)*

A number of industry-orientated tasks based on a sound investigation, a comprehensive report on the analysis and solution or completion of the task must be submitted. The tender process. (Total tuition time: ± 150 hours)

**R****RESEARCH METHODOLOGY (RMD101L)****CONTINUOUS ASSESSMENT***(Subject custodian: Department of Geomatics)*

Research planning and design. The research report, hypothesis testing, report formats. (Total tuition time: ± 100 hours)

**S****SURVEYING IV (SUR411T)****CONTINUOUS ASSESSMENT***(Subject custodian: Department of Geomatics)*

Instrumentation for precise surveying, application of spherical trigonometry to theodolite errors, effects and corrections of theodolite and level errors. Error analysis of EDM measurements, EDM calibration. Observation and calculation methods of precise surveying, detection and monitoring of movements, absolute and relative, application of least squares to analysis and design survey networks. (Total tuition time: ± 200 hours)

**T****TOWN PLANNING IV (TPN401T)****CONTINUOUS ASSESSMENT***(Subject custodian: Department of Geomatics)*

Historical perspective, modern trends. Land use: major land uses, land-use relationships, zoning. Township design: urban, local, residential layouts, informal settlements. Planning law and procedure, ordinances, etc. (Total tuition time: ± 100 hours)

