

POSTGRADUATE DIPLOMA IN GEOMATICS

PGDip (Geomatics) - NQF Level 8 (124 credits)

Qualification code: PDGM24

SAQA ID: 119822, CHE NUMBER: H/H16/E226CAN

Campus where offered: Pretoria Campus

REMARKS

- a. *Admission requirement(s):*
An Advanced Diploma in Geomatics, or A Baccalaureus Technologiae: Surveying, or a Bachelor of Geomatics, or an equivalent NQF level 7 qualification in a closely related field. Preference will be given to applicants with an average of 60% or more.
- b. *Selection criteria:*
Admission is subject to selection. All completed applications received within the published due dates will be ranked. After consideration of the Departmental Student Enrolment Plan, only the top ranking applicants will be selected. Once a programme is full, a waiting list will be in place to provide an opportunity for applicants to fill places of those who did not meet the 60% requirement. Applicants will be informed of their status per official letter from the Office of the Registrar, alternatively, they can check their application status on the TUT website, www.tut.ac.za.

Candidates who do not meet the 60% requirement will be evaluated by a panel consisting the Head of the Department and two other senior academic staff members in order to be considered for selection. The evaluation will consist of a portfolio of evidence of relevant work experience in engineering surveying (excluding work integrated learning) and an interview by the panel.
- c. *Recognition of Prior Learning (RPL), equivalence and status:*
See Chapter 30 of Students' Rules and Regulations.
- d. *Intake for the qualification:*
January only.
- e. *Presentation:*
Block-mode classes.
- f. *Minimum duration:*
One year.
- g. *Exclusion and readmission:*
See Chapter 2 of Students' Rules and Regulations.
- h. *Re-registration:*
A student may re-register for the module Geomatics Project Engineering Surveying only with the permission of the Head of the Department. The purpose of the re-registration is to provide students with an opportunity to complete the final project only, and not to redo the whole module, should they fail the module.



CURRICULUM

SEMESTER MODULES

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
FIRST SEMESTER				
ASG118G	Advanced Satellite Surveying and Geodesy	(8)	(12)	
ATS118G	Advanced Theory of Survey Adjustments	(8)	(12)	
GDS118G	Geomatics Data Science and Technology	(8)	(12)	
PC1118G	Advanced Precise Engineering Surveying I	(8)	(12)	
RGM118G	Research Methodology	(8)	(10)	
SECOND SEMESTER				
GLE118G	Geomatics Law and Entrepreneurship	(8)	(12)	
GPE118G	Geomatics Project Engineering Surveying	(8)	(30)	Research Methodology
GPE118R	Geomatics Project Engineering Surveying (re-registration, first-semester module)	(8)	(0)	
LMS118G	Land Management and Spatial Planning	(8)	(12)	
PC2118G	Advanced Precise Engineering Surveying II	(8)	(12)	Advanced Precise Engineering Surveying I
TOTAL CREDITS FOR THE QUALIFICATION:			124	

MODULE INFORMATION (OVERVIEW OF SYLLABUS)

A

ADVANCED PRECISE ENGINEERING SURVEYING I (PC1118G) CONTINUOUS ASSESSMENT (Module custodian: Department of Geomatics)

This module provides students with the application of the knowledge, cognitive and conceptual tools and practical skills in surveying to manipulate data collected. The key is to provide the student with an advanced understanding of Precise Engineering Surveying. The surveyor will often be required to use their judgment to make important decisions affecting the survey. Specifically, this module will include aerial photography and photogrammetry for precise specifications, specialised instrumentation for advanced precise surveys, precise engineering surveying and heighting methods and precise deformation surveys and monitoring. (Total notional time: 120 hours)

ADVANCED PRECISE ENGINEERING SURVEYING II PC2118G) CONTINUOUS ASSESSMENT (Module custodian: Department of Geomatics)

This module provides students with the application of the knowledge, cognitive and conceptual tools and practical skills in surveying to manipulate data collected. specifically, this unit will include the design of monitoring projects, precise techniques for setting out of structures, geodetic control network surveys, horizontal positioning techniques, and geodetic vertical positioning techniques. lastly, case studies of highly precise surveys are included. (Total notional time: 120 hours)



ADVANCED SATELLITE SURVEYING AND GEODESY (ASG118G)**CONTINUOUS ASSESSMENT*****(Module custodian: Department of Geomatics)***

The purpose of the module is to provide students with a deeper understanding of satellite surveying and geodesy as it relates to geomatics and geomatics practice. Students will be equipped with the skills to apply trigonometric computations on spherical and spheroidal earth models, the skills to convert point coordinates between different geodetic datums and be able to analyse how irregular shapes of Earth models and the gravity field can affect the accuracy of geodetic measurements. (Total notional time: 120 hours)

ADVANCED THEORY OF SURVEY ADJUSTMENTS (ATS118G)**CONTINUOUS ASSESSMENT*****(Module custodian: Department of Geomatics)***

This module equips students with advanced skills for determining errors in surveying and then applying adjustments to observations so that the computed values of indirect measurements can be as accurate as possible. The module includes units in advanced error propagation, least squares adjustments, error ellipses, coordinate transformations, GNSS networks, 3D-geodetic network adjustments and analyses of adjustments. (Total notional time: 120 hours)

G**GEOMATICS DATA SCIENCE AND TECHNOLOGY (GDS118G)****CONTINUOUS ASSESSMENT*****(Module custodian: Department of Geomatics)***

This module equips students with Geomatics Data Science and Technology skills and give them the introductory knowledge, cognitive and conceptual and practical skills. The module provides the students with the essential understanding within the geomatics context of data science, artificial intelligence, machine learning, big data, data mining, data visualisation and cloud computing. (Total notional time: 120 hours)

GEOMATICS LAW AND ENTREPRENEURSHIP (GLE118G)**CONTINUOUS ASSESSMENT*****(Module custodian: Department of Geomatics)***

This module equips students with knowledge in land rights, land tenure concepts, cadastral surveys, laws applicable to and related to geomatics. Importantly, entrepreneurship and business planning are taught. Professionalism, ethics, professional communication, and etiquette is included in this module as it is essential. (Total notional time: 120 hours)

GEOMATICS PROJECT ENGINEERING**CONTINUOUS ASSESSMENT****SURVEYING (GPE118G, GPE118R)*****(Module custodian: Department of Geomatics)***

This module enables students to solve complex real-world geomatics problems, demonstrate project report writing skills, apply entrepreneurial skills, and apply theoretical knowledge, modelling, and research. (Total notional time: 300 hours)

L**LAND MANAGEMENT AND SPATIAL PLANNING (LMS118G) CONTINUOUS ASSESSMENT*****(Module custodian: Department of Geomatics)***

This module equips students with content on urban design such as zoning, integrated development planning, city models and smart cities with the supporting legislation. The land development process is detailed with focus on both the town planning and engineering surveying. This module will also include urban and rural management, and spatial dynamics. Related legislation with introduction to urban spaces and integrated environmental management combined with land management practice, land administration, valuation and economics. (Total notional time: 120 hours)

R**RESEARCH METHODOLOGY (RGM118G)****PROJECT ASSESSMENT*****(Module custodian: Department of Geomatics)***

When complex theoretical and technical problems are solved, new knowledge is created. This module focuses on the research process and methods of inquiry to solve such problems. This involves evaluating current research in the geomatics disciplines and developing competence in using instruments and software to collect data, evaluate results and judge the quality and limitations of research. Emphasis is also placed on the verbal and written communication of research findings to specialist audiences. (Total notional time: 100 hours)

