



UNIVERSITY
of
TECHNOLOGY,
MAURITIUS

School of Innovative Technologies and Engineering

Department of Applied Mathematical Sciences

BSc (Hons) Land Surveying (Top-Up)

PROGRAMME DOCUMENT

VERSION 1.1

BLSv1.1

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University of Technology, Mauritius

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BSc (Hons) Land Surveying (Top-Up)

A. Programme Information

Land surveying is a field that focuses on the use of spatial information to accurately determine the terrestrial position of points and the metrics and angles between them. To successfully achieve their objectives, it is mandatory for land surveyors to have sound knowledge of advanced Mathematics (geometry and trigonometry), Science and Law.

The role of surveyors is to create, expand and manage systems for gathering and studying spatial data about the land, the marine, natural resources and man-made features.

This programme is a top-up degree and is designed for students who already possessed a Diploma in Land Surveying. The students will be exposed to advanced modules in land surveying and will have to complete a final year dissertation to be qualified for the BSc (Hons) award.

B. Programme Aims

This programme aims to further provide a comprehensive and detailed knowledge of the theories and methods of land surveying to enable the students to work efficiently with respect to regional, national and international requirements.

C. Programme Objectives

After successful completion of the programme, graduates will be expected to

- have acquired adequate mathematical skills for spatial data analysis and interpretation
- have gained a broad insight in the legal framework for professional practice as surveyors
- demonstrate an understanding of land surveying packages
- show an ability to examine land surveying
- have developed a sense of critical land surveying and land information reasoning
- build the necessary confidence in working independently and as a member of a team

PART I - Regulations

D. General Entry Requirements

As per UTM'S Admission Regulations, and 'Admission to Programmes of Study at Degree Level'

E. Programme Entry Requirements

- (i) Two 'A' Level passes in Mathematics and another science subject
- (ii) Diploma in Land Surveying

F. Programme Mode and Duration

Full Time: 1 year (2 Semesters)
Part Time: 1 ½ years (3 Semesters)

G. Teaching and Learning Strategies

- Lectures, Tutorials and Practical Laboratory Sessions
- Structured Discussions and Self – Directed Study
- Workshops and Seminars

H. Attendance Requirements

As per UTM's Regulations and Policy

I. Credit System

1 module = 3 or 4 or 6 credits
Final Year Dissertation = 9 credits

J. Student Progress and Assessment

The programme is delivered mainly through lectures, tutorials, and practical laboratory sessions. Students are expected to be as autonomous as possible and activities may include reading papers, delivering presentations, quizzes, case-studies among others.

All modules will carry 100 marks and will be assessed as follows (*unless otherwise specified*):

Written examination, inclusive of reading time, of duration of 2 - 3 hours for 3 credits modules and not less than 3 hours for 4 credits modules and continuous assessment carrying up to 40% of total marks. Continuous assessment can be based on a combination of assignments, field study, workshops and class tests.

K. Evaluation of Performance

1. The % mark at Level 3 contributes a 100% weighting towards the degree classification.

Module grading structure:

Grade	Marks x (%)
A	$70 \leq x$
B	$60 \leq x < 70$
C	$50 \leq x < 60$
D	$40 \leq x < 50$
F	$x < 40$
A – D	Pass
F	Fail

L. Award Classification

Overall weighted mark y (%)	Classification
$y \geq 70$	1 st Class Honours
$60 \leq y < 70$	2 nd Class 1 st Division Honours
$50 \leq y < 60$	2 nd Class 2 nd Division Honours
$45 \leq y < 50$	3 rd Class Honours
$40 \leq y < 45$	Pass Degree
$y < 40$	No Award

M. Programme Organisation and Management

Programme Director: Dr Kumar Dookhitram

Contact Details:

- Telephone Number: 207 52 50 (Ext. 306)
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PART II - Programme Structure

N. BSc (Hons) LAND SURVEYING (Top-Up) – Full Time (Version 1.0)

YEAR 1 (Level 3)							
Semester 1				Semester 2			
Code	Modules	Hrs/Wk L+T/P	Credits	Code	Modules	Hrs/Wk L+T/P	Credits
GEOM 3101C	<i>Cadastral Systems and Professional Practice</i>	2+2	4	GEOM 3203C	<i>Geo-Informatics</i>	2+2	4
GEOM 3201C	<i>GIS Fundamentals</i>	2+2	4	GEOM 3102C	<i>Geo-Hazards and Safety Management</i>	2+1	3
GEOM 3202C	<i>Advanced Geodesy</i>	2+1	3	GEOM 3204C	<i>Land Traffic Planning</i>	2+1	3
MATH 3331C	<i>Valuation Method</i>	2+1	-	MATH 3331C	<i>Valuation Method</i>	2+1	6
PROJ 3112C	<i>Dissertation</i>						9

O. BSc (Hons) LAND SURVEYING (Top-Up) – Part Time (Version 1.0)

YEAR 1 (Level 3)							
→ <i>Start of Level 1</i>							
Semester 1				Semester 2			
Code	Modules	Hrs/Wk L+T/P	Credits	Code	Modules	Hrs/Wk L+T/P	Credits
GEOM 3101C	<i>Cadastral Systems and Professional Practice</i>	2+2	4	MATH 3331C	<i>Valuation Method</i>	2+1	-
GEOM 3201C	<i>GIS Fundamentals</i>	2+2	4	GEOM 3203C	<i>Geo-Informatics</i>	2+2	4
GEOM 3202C	<i>Advanced Geodesy</i>	2+1	3	GEOM 3102C	<i>Geo-Hazards and Safety Management</i>	2+1	3
				PROJ 3112C	<i>Dissertation</i>		

YEAR 2 (Level 3)			
Semester 1			
Code	Modules	Hrs/Wk L+T/P	Credits
GEOM 3204C	<i>Land Traffic Planning</i>	2+1	3
MATH 3331C	<i>Valuation Method</i>	2+1	6
PROJ 3112C	<i>Dissertation</i>		9
<i>End of Level 3</i> →			

P. Module Outline

GEOM 3101C: CADASTRAL SYSTEMS AND PROFESSIONAL PRACTICE

- Applications of cadastral surveying
- Land parcel, identifiers, boundaries, strata, interest and tenure
- Cadastral survey methodology
- Social-economic significance and benefits of the cadastre
- Land acquisition, adjudication and demarcation
- Mauritius and international cadastral systems
- Misrepresentation
- Negligence and liability
- Law of evidence
- Surveyor as a witness
- Professional conduct and ethics
- Practice of land surveying and mapping in both state and private sectors

GEOM 3201C: GIS FUNDAMENTALS

- Concepts and data models in GIS
- Sources of data, data acquisition systems and methods for data conversion
- Application of GIS, topology and digital inaccuracy
- Spatial queries and analyses
- Visualization of geographical data and information

GEOM 3202C: ADVANCED GEODESY

- Geodetic reference frames; time systems, polar motion and precession
- Geoid and gravity anomalies
- Normal gravity field; height systems
- Satellite orbits and orbital perturbations
- Modelling of the Earth's gravity fields

MATH 3331C: VALUATION METHOD

Part One

- Property markets and role of the valuer
- Land property: demand and supply
- Investment method of valuations
- Valuation tables and corresponding mathematics
- Valuation through comparison, investment, residual and profit approaches

Part Two

- Comparison and contractors method of valuation
- Leasehold interests
- Investment and development appraisals
- Residual valuation
- residual cash flow

GEOM 3203C: GEO-INFORMATICS

- Spatial data infrastructure and geospatial data standards
- Open source geospatial data and mapping
- Spatial analysis and descriptive statistics

- Measures of global and local spatial autocorrelation
- Geostatistics and geographical regression analysis
- Land use spatial simulation modelling
- Geovisualization and GIS output

GEOM 3102C: GEO-HAZARDS AND SAFETY MANAGEMENT

- Occupational Safety and Health Act
- Safety policies
- Accident prevention and control
- Flammable components, fire prevention and control on site and in the office
- Natural hazards, definitions, concepts and characteristics, Mauritian based hazards
- Methodologies for identification, mapping and prediction

GEOM 3204C: LAND TRAFFIC PLANNING

- Human mobility
- Modes of travel and land use
- Traffic generation; concepts and parameters
- Assessment of transport
- Traffic flow theory and measuring traffic
- Street design and traffic management
- Motorway location: constraints and environmental problems
- Vertical and horizontal alignment design

PROJ 3112C: DISSERTATION

- Dissertation guidelines will be given in the Dissertation Handbook
- Students have to pursue research methodology workshops at start of the dissertation