



UNIVERSITY  
of  
TECHNOLOGY,  
MAURITIUS

## School of Innovative Technologies and Engineering

Department of Applied Mathematical Sciences

# BSc (Hons) Mathematics

PROGRAMME DOCUMENT

VERSION 4.0

**BMv4.0**

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**University of Technology, Mauritius**

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### A. Programme Information

As well as being a discipline in its own right, mathematics forms the basis of modern commercial, industrial and technological activities. Mathematical models underpin engineering, sciences, computing and many aspects of management today.

The BSc (Hons) Mathematics programme lays focus on the attributes of pure and applied mathematics. The modules are designed with a blend of mathematical, statistical and computer modelling so as to imbibe students undertaking the programme of study with appropriate skills to deal with the multidisciplinary involvement of mathematics. Moreover, the students will be required to undergo a work placement at the second level of the programme of study.

### B. Programme Aims

The BSc (Hons) Mathematics has been designed to provide the students with the skills and aptitudes needed to develop analytical, computational and statistical knowledge. Students are expected to be versatile in the application of mathematics and mathematical reasoning in different fields, including science, finance, transportation, engineering and education, amongst others. The programme will give the students experience of mathematical activity and investigation, and develop them to be resourceful in solving problems for which ready-made methods are not available. The programme will also provide the students with broad concepts of the principal branches of mathematics.

### C. Programme Objectives

After successful completion of the programme, the graduates should

- display a mastery of the principal skills required for work in mathematics;
- have achieved a broad understanding and knowledge, and have an interest in and appreciation of mathematics;
- be conversant with information technology, communication and scientific presentation;
- have acquired problem-solving attributes;
- be skilled in the application of mathematics in a variety of fields, including science, engineering and business.

## PART I - Regulations

### D. General Entry Requirements

As per UTM'S Admission Regulations.

### E. Programme Entry Requirements

'A' Level in Mathematics.

### F. Programme Mode and Duration

Full Time: Minimum 3 Years, Maximum 6 Years (Minimum 6 Semesters, Maximum 12 Semesters)

Part Time: Minimum 4.5 Years, Maximum 7.5 Years (Minimum 9 Semesters, Maximum 15 Semesters)

### G. Teaching and Learning Strategies

- Lectures, Tutorials, Practical Laboratory Sessions and Self-Development Activities;
- Class Tests, Assignments and Dissertation/Projects;
- Structured Discussions and Self-Directed Study;
- Workshops and Seminars;
- Case Study of real world problems;
- Work Placement.

### H. Student Support and Guidance

Each cohort of the programme is allocated a Programme Coordinator who acts as a liaison between the students and school management and provides support for academic management of the programme.

### I. Attendance Requirements

As per UTM's Regulations and Policy.

### J. Credit System

The programme is aligned with the European Credit and Transfer System (ECTS).

One module will carry 150 hours of learning comprising of 45 hours of delivery which would be any combination of face-to-face, blended, online, seminar, workshop or joint session. The remaining 105 hours will cover self-learning, self-study, guest lecture, etc

For the award of

- a Certificate, a minimum of 60 credits are required;
- a Diploma, a minimum of 120 credits are required;
- an Honours Degree, 180 credits are required.

## K. Student Progress and Assessment

The programme is delivered mainly through lectures (L), tutorials (T), and practical (P) laboratory sessions. Students are expected to be as autonomous as possible and self-development (SD) activities may include reading, writing reports, delivering presentations, taking part in quizzes, and case-studying, amongst others. Each module carries 100 marks and unless otherwise specified will be assessed as follows:

- written and/or practical examination, and continuous assessment carrying from 30% to 40% of total marks;
- continuous assessment must consist of at least one class test and may also include assignments, field study, workshops and practical tests;
- modules 'Computer Programming I', 'Communication Skills Seminar' and 'Life Skills and Good Practices' will be assessed by 100% coursework. The coursework must consist of at least one class test and at least one assignment.

Module grading structure:

Grade	Marks $x$ (%)	Remarks
A	$70 \leq x \leq 100$	Excellent
B	$60 \leq x < 70$	Very Good
C	$50 \leq x < 60$	Good
D	$40 \leq x < 50$	Satisfactory
F	$x < 40$	Referred

## L. Evaluation of Performance

1. The % mark at Level 1 contributes a 20% weighting towards the degree classification.
2. The % mark at Level 2 contributes a 30% weighting towards the degree classification.
3. The % mark at Level 3 contributes a 50% weighting towards the degree classification.

## M. Award Classification

Overall weighted mark $y$ (%)	Classification
$70 \leq y \leq 100$	First Class with Honours
$60 \leq y < 70$	Second Class First Division with Honours
$50 \leq y < 60$	Second Class Second Division with Honours
$45 \leq y < 50$	Third Class with Honours
$40 \leq y < 45$	Pass
$y < 40$	No Award

## N. Programme Organisation and Management

Programme Director: Dr Mohammad Sameer SUNHALOO

Contact Details:

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## PART II - Programme Structure

### O. BSc (Hons) MATHEMATICS – Full Time (Version 4.0)

YEAR 1 (Level 1)							
Semester 1				Semester 2			
Code	Modules	Hrs/Wk L/T/P+SD	Credits	Code	Modules	Hrs/Wk L/T/P+SD	Credits
MATH 1332C	Calculus and Matrix Algebra I	3+7	6	MATH 1333C	Calculus and Matrix Algebra II	3+7	6
STAT 1217C	Probability and Mathematical Statistics I	3+7	6	STAT 1218C	Probability and Mathematical Statistics II	3+7	6
COMP 1101C	Computer Programming I	3+7	6	MATH 1201C	Algebra	3+7	6
COMM 1116C	Communication Skills Seminar	3+7	6	MATH 1315C	Mechanics	3+7	6
MATH 1210C	Real Analysis I	3+7	6	MATH 1211C	Real Analysis II	3+7	6

YEAR 2 (Level 2)							
Semester 1				Semester 2			
Code	Modules	Hrs/Wk L/T/P+SD	Credits	Code	Modules	Hrs/Wk L/T/P+SD	Credits
MATH 2208C	Complex Analysis	3+7	6	MATH 2213C	Metric Spaces	3+7	6
MATH 2316C	Numerical Computing	3+7	6	MATH 2318C	Matrix Computations	3+7	6
MATH 1212C	Linear Algebra	3+7	6	STAT 2212C	Linear Statistical Models	3+7	6
MATH 2302C	Differential Equations	3+7	6	MATH 2319C	Numerical Methods for ODEs	3+7	6
UTM 2101	Life Skills and Good Practices	3+7	6				
PROJ 2119C	Work Placement (in the Semester Break)						6

YEAR 3 (Level 3)							
Semester 1				Semester 2			
Code	Modules	Hrs/Wk L/T/P+SD	Credits	Code	Modules	Hrs/Wk L/T/P+SD	Credits
MATH 3320C	Optimisation	3+7	6	MATH 3321C	Fluid Dynamics	3+7	6
MATH 3322C	Numerical Solution of PDEs	3+7	6	QFIN 3201C	Financial Option Valuation	3+7	6
MATH 3214C	Functional Analysis	3+7	6	STAT 3301C	Probability Models	3+7	6
MATH 3335C	Stochastic Calculus and Applications	3+7	6	MATH 3336C / STAT 3336C	Practical Applied Mathematics or Applied Multivariate Statistics*	3+7	6
PROJ 3110C	Project						12

**P. BSc (Hons) MATHEMATICS – Part Time (Version 4.0)**

YEAR 1							
→ Start of Level 1							
Semester 1				Semester 2			
Code	Modules	Hrs/Wk L/T/P+SD	Credits	Code	Modules	Hrs/Wk L/T/P+SD	Credits
MATH 1332C	Calculus and Matrix Algebra I	3+7	6	MATH 1333C	Calculus and Matrix Algebra II	3+7	6
STAT 1217C	Probability and Mathematical Statistics I	3+7	6	STAT 1218C	Probability and Mathematical Statistics II	3+7	6
COMP 1101C	Computer Programming I	3+7	6	MATH 1210C	Real Analysis I	3+7	6
COMM 1116C	Communication Skills Seminar	3+7	6				

YEAR 2							
				→ Start of Level 2			
Semester 1				Semester 2			
Code	Modules	Hrs/Wk L/T/P+SD	Credits	Code	Modules	Hrs/Wk L/T/P+SD	Credits
MATH 1201C	Algebra	3+7	6	MATH 2208C	Complex Analysis	3+7	6
MATH 1315C	Mechanics	3+7	6	MATH 2316C	Numerical Computing	3+7	6
MATH 1211C	Real Analysis II	3+7	6	MATH 1212C	Linear Algebra	3+7	6
End of Level 1 →							

YEAR 3							
Semester 1				Semester 2			
Code	Modules	Hrs/Wk L/T/P+SD	Credits	Code	Modules	Hrs/Wk L/T/P+SD	Credits
MATH 2302C	Differential Equations	3+7	6	MATH 2213C	Metric Spaces	3+7	6
UTM 2101	Life Skills and Good Practices	3+7	6	STAT 2212C	Linear Statistical Models	3+7	6
MATH 2318C	Matrix Computations	3+7	6	MATH 2319C	Numerical Methods for ODEs	3+7	6
PROJ 2119C	Work Placement (in the Semester Break)						6
End of Level 2 →							

YEAR 4							
→ Start of Level 3							
Semester 1				Semester 2			
Code	Modules	Hrs/Wk L/T/P+SD	Credits	Code	Modules	Hrs/Wk L/T/P+SD	Credits
MATH 3320C	Optimisation	3+7	6	MATH 3321C	Fluid Dynamics	3+7	6
MATH 3322C	Numerical Solution of PDEs	3+7	6	QFIN 3201	Financial Option Valuation	3+7	6
MATH 3214C	Functional Analysis	3+7	6	PROJ 3110C	Project	-	-
MATH 3335C	Stochastic Calculus and Applications	3+7	6				

YEAR 5			
Semester 1			
Code	Modules	Hrs/Wk L/T/P+SD	Credits
STAT 3301C	Probability Models	3+7	6
MATH 3336C / STAT 3336C	Practical Applied Mathematics or Applied Multivariate Statistics*	3+7	6
PROJ 3110C	Project	-	12
End of Level 3 →			

\* The University reserves the right not to offer any given elective if the critical number of students is not attained and/or for reasons of resource constraints