

Tribhuvan University



Institute of Science and Technology SCHOOL OF MATHEMATICAL SCIENCES

CURRICULUM STRUCTURE

Bachelor in Mathematical Sciences (B.Math.Sc.) - Program (With Major Actuarial Science)

1. Introduction

The curriculum structure of BMathSc program is designed to provide the breadth and depth of knowledge needed for a successful career in actuarial science. Students learn about the discipline that assesses finance and applies the statistics and mathematics of probability to define, analyze, and solve the financial implications of uncertain future events. BMS program is a multi-disciplinary subject that includes the use of *Mathematics, Statistics, Computer Science and Information Technology* and other social science subjects to equip students with the tools to help them excel in various actuary fields, such as insurance, finance, investment and risk management.

The program is full time, of 8 Semesters in 4 years in duration. The first two years of BMath. Sc. program provides a foundation on a broad range of areas including Mathematics, Statistics and Computer Science. In the remaining two years of the program that start from the fifth semester, students start studying Actuarial Science as a major subject.

Total Credit hours: 123 Cr. Hrs.

Nature of Courses: Theoretical, Practical, Project, Seminar and Intern.

2. Eligibility

The candidate applying for admission to the B.Math.Sc program must have completed 12 or equivalent examinations from any stream (Science / Management / Education / Arts) with minimum second division (securing 45% and above) or Minimum 'C' grade in all subjects of grade 12 by taking at least one Mathematics or Business Mathematics of 100 marks or 5 Credit hrs.

3. Evaluation System

All evaluation schemes will be as per the rule of TU semester system rules and regulations.

- a) **Internal evaluation:** In each subject there will be internal evaluation of 40% of total credits (or 40% marks). Internal exams will be based on: Term Assessments, Attendance, Assignment, Presentation / Viva/ Class seminar / Project work etc.

- b) Semester end exam:** In each subject there will be final exam at the end of each semester of 60% of total credits (or 60% marks). End semester exam will be conducted by Institute of Science and Technology or School in permission of exam board of TU.
- c) Evaluation of project:** Research / project will be monitored by supervisor; pre viva by the school after submission; and then evaluation of project by one internal and one external examiner.

4. Teaching Pedagogy

The general teaching pedagogy of B.Math.Sc includes class lectures, group discussions, case studies, guest lectures, research work, project work (individual and group), assignments (theoretical and practical), and term papers. The teaching faculty will determine the choice of teaching pedagogy as per the need of the course. The concerned faculty shall develop a detailed course outline and work plan at the beginning of each semester.

5. Course Structure

Semester	Papers	Credit
First	MSMT 101 Calculus with Analytic Geometry I	3
	MSST 101 Statistics & Data Analysis I	3
	MSCS 101 Fundamentals of Computer Science	3
	MSEN 101 Communication skill I	3
	MSCS 102 Mathematics Software (MATLAB)	3
Total		15

Semester	Papers	Credit
Second	MSMT 151 Calculus with Analytic Geometry II	3
	MSMT 152 Linear Algebra with application I	3
	MSST 151 Statistics & Data Analysis II	3
	MSCS151 Introduction to Programming I	3
	MSEN 151 Communication skill II	3
Total		15

Semester	Papers	Credit
	MSMT 201 Linear Algebra with application II	3
	MSST 201 Theory of Probability	3

Third	MSCS 201 Introduction to Programming II	3
	MSMT 202 Differential equations	3
	MSMT 203 Gen. Logic	3
Total		15

Semester	Papers	Credit
Fourth	MSMT 251 Discrete Mathematics	3
	MSST 251 Applied Probability Models	3
	MSST 252 Mathematical Statistics	3
	MSMT 252 Mathematical Modeling	3
	MSCS 251 Data Structure and Algorithm	3
Total		15

Semester	Papers	Credit
Fifth	MSMT 301 Financial Mathematics	3
	MSAS 301 Actuarial Models I: Life contingent I	3
	MSAC 301 Financial Accounting	3
	MSFI 301: Financial Institutions	3
	MSNE 301 Nepali literature	3
Total		15

Semester	Papers	Credit
Sixth	MSMT 351: Financial Mathematics II	3
	MSAS 351: Actuarial Models II: Life contingent II	3
	MSEC 351 : Principles of Economics I (micro)	3
	MSAC 351: Corporate and Managerial Accounting	3
	MSCS 351: R Programming	3
Total		15

Semester	Papers	Credit
Seventh	MSMN 401: Business Management I	3
	MSIN 401: Risk Management and Insurance	3
	MSEC 401 : Principles of Economics II (macro)	3
	MSEN 401 : Technical Writing and Communication English	3
	MSHU 401: Anthropology	3
	MSPR 401: Project	3
Total		18

Semester	Papers	Credit
Eight	MSMN 451: Business Management II	3
	MSIN 451: Life and Property Insurance	3
	MSCB 451: Different Aspects of Financial Institutions	3
	MSST 451: Research Methodology	3
	MSIN 452 : Internship	3
	Total	15

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