Lalit Narayan Mithila University, Darbhanga

Multidisciplinary Course (MDC)
Mathematics for All Streams (Semester I)

Course Details

Course Code: MDC-01
Title: Basic Mathematics for Multidisciplinary Applications
Credits: 3 (Lecture: 30)
Objective: Introduce fundamental mathematical concepts and tools, tailored for students from diverse disciplines.

Course Structure

Unit 1: Fundamentals of Arithmetic and Algebra (10 Lectures)
- Basic operations on real numbers and properties
- Introduction to linear and quadratic equations
- Factorization of polynomials
- Concept of HCF, LCM, and divisors
- Simplification of algebraic expressions and identities

Unit 2: Basics of Matrices and Determinants (10 Lectures)
- Introduction to matrices and types of matrices
- Operations on matrices: Addition, subtraction, multiplication
- Determinant of a 2x2 and 3x3 matrix
- Properties of determinants
- Solution of systems of linear equations using matrices (up to 2 variables)

Unit 3: Basics of Geometry and Trigonometry (10 Lectures)
- Distance formula and section formula
- Introduction to slope and equations of a straight line
- Basics of trigonometric ratios and identities
- Applications of trigonometry in solving triangles
- Introduction to coordinate geometry concepts

Evaluation

Internal Assessment: 30 Marks
End-Semester Examination: 70 Marks

Structure of 70-Mark Exam:
Part A: 10 Objective/True-False Questions (20 Marks)
Part B: 4 Short Answer Questions (5 Marks each, Total: 20 Marks)
Part C: 3 Long Answer Questions (10 Marks each, Total: 30 Marks)

References

1. Sharma, R. C., *Basic Algebra*, Bharti Prakashan, Patna.
2. Strang, G., *Introduction to Linear Algebra*.
3. Rosen, K. H., *Discrete Mathematics and Its Applications*.
4. Thomas, G. B., *Calculus and Analytic Geometry*.
5. Loney, S. L., *Plane Trigonometry, Part I*.

Syllabus Committee

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