

B.Sc. Biotechnology: Semester-I
BST-105: Elementary Math I

<p>Teaching Scheme Lectures: 3 hrs/Week Tutorials: 1 hr/Week</p> <p>Credits: 4</p>	<p>Examination Scheme Class Test -12Marks Teachers Assessment - 6Marks Attendance - 12 Marks End Semester Exam - 70 marks</p>
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Prerequisite: - General knowledge of Mathematics of intermediate standard

Course Objectives:

1. To give an overview of mathematical concepts and their significance.
2. To give basic knowledge of algebra, geometry and trigonometry.
3. To have an overview of Integration as inverse process of differentiation.
4. To explain about the applications in finding the area under simple curves.
5. To explain the Formation of differential equation whose general solution is given.
6. To explain the simple integrals of the type to be evaluated.

Course Outcomes:

After completing the course, students will be able to:

- CO1: Understand various applications of mathematical concepts.
- CO2: Derivation of polynomial and trigonometric functions.
- CO3: Identify different types of Integration as inverse process of differentiation
- CO4: Understand the area under simple curves
- CO5: Analysis of differential equation.

Detailed Syllabus

<p>UNIT-1 Derivatives</p> <p>Definition, algebra of derivatives of functions, Derivatives of polynomial and trigonometric functions, Rate of change, increasing/decreasing functions, Maxima and minima (first derivative test motivated geometrically and second derivative test gives as a provable tool), Simple problems (that illustrate basic principles and understanding of the subject as well as real-life situations).</p>
<p>UNIT-2 Integration</p> <p>Integration as inverse process of differentiation, Integration of a variety of functions by substitution, by partial fractions and by parts, only simple integrals of the type to be evaluated.</p> <p>Applications in finding the area under simple curves, especially lines, areas of circles/parabolas/ellipses (in standard form only), area between the two above said curves (the region should be clearly identifiable).</p>
<p>UNIT-3 Differential equations</p>

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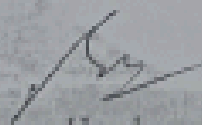
Definition, order and degree, General and particular solutions of a differential equation Formation of differential equation whose general solution is given, Solution of differential equations by method of separation of variables.

Text and Reference Books:

1. Mathematics Part I - Textbook for Class XI, NCERT Publication
2. Mathematics Part II - Textbook for Class XI, NCERT Publication,
3. Mathematics Class XI and XII by R D Sharma.


Reference books:

1. Glyn James, "Higher engineering mathematics" (Tata Macgraw Hill)
2. B.V.Ramana, "Advanced modern engineering mathematics" (Pearson education)



Head

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