

ADD ON COURSE ON
**“PRELIMINARIES OF APPLIED MATHEMATICS
AND STATISTICS”**

Organized by

**Department of Mathematics and Statistics,
Mangaldai College**

INTRODUCTION

Applied mathematics and statistics are disciplines devoted to the use of mathematical methods and reasoning to solve real-world problems of a scientific or decision-making nature in a wide variety of subjects, principally (but not exclusively) in engineering, medicine, the physical and biological sciences, and the social sciences. Applied mathematical modeling often involves the use of systems of differential equations to describe and predict the behavior of complex real-world systems that unfold dynamically in time.

PROGRAMME OBJECTIVES:

Students who choose Add on course Programme in Mathematics and Statistics, develop the ability to think critically, logically and analytically. The Programme covers Calculus, Differential equation and its application, Matrices and its application and Descriptive Statistics and numerical analysis in various domains.

PROGRAMME LEARNING OUTCOMES:

- 1) Communicate Mathematics effectively by oral, written and computational.
- 2) Create Mathematics ideas from basic axioms.
- 3) Identify applications of Mathematics and Statistics in other disciplines.

DURATION OF THE COURSE:

The duration of the course is of three months with 30 hours. (Two classes in a week)

STUDENT PARTICIPANTS:

The course is open to all students of Mangaldai College pursuing under graduation. Students need to apply for registration in the course and a nominal fee will be charged from students as decided by the course committee.

COURSE COMMITTEE:

Course Mentor:

Dr. Kamala Kanta Borah, Principal, Mangaldai College

Joint Course Coordinators:

Mr. Debajit Nath, HOD Department of Mathematics, Mangaldai College

Dr. Ranjita Goswami, HOD Department of Mathematics, Mangaldai College

Members:

Mr. Dimbeswar Kalita, Asstt. Professor, Department of Mathematics, Mangaldai College

Mr. Pranab Das, Asstt. Professor, Department of Statistics, Mangaldai College

Mr. Jintu Mani Nath, Asstt. Professor, Department of Mathematics, Mangaldai College

Course Fee: Rs. 300/-

SYLLABUS OF THE COURSE

Theory (Marks: 60)

UNIT 1: 20

Derivative of various functions and its basic application, Integration of various functions and its applications, Differential equations and its applications.

UNIT 2: 20

Definition and types of Matrices, Algebra of Matrices, Minor, Cofactor and inverse of Matrices, Determinant.

UNIT 3: 20

Measures of central tendency, Measures of Dispersion, Numerical Analysis.

Practicals (Marks: 40)

List of Practicals (Using any software)

1. Plotting of second order solution family of differential equation.
2. Plotting of third order solution family of differential equation.
3. Find the operations (transpose, determinant, inverse etc.) of distinct matrices.
4. Developing the following Numerical programs:
 - Bisection Method
 - Newton Raphson Method
 - Secant Method

Some snapshots of inaugural session of the course:





Mangaldoi, Assam, India
Abhoypukhuri gram panchayat, C2H7+G7J, Mangaldoi, Assam
784529, India
Lat 26.429082°
Long 92.012781°
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