INSTITUTE	**FACULTY OF AGRICULTURE**
PROGRAM	**BACHELOR OF SCIENCE (Hons.) AGRICULTURE**
SEMESTER	**1**
COURSE TITLE	**ELEMENTARY MATHEMATICS**
COURSE CODE	**16MA0101**
COURSE CREDITS	**2**

Objective:

1 To help students understand and acquire basic mathematical concepts and computational skills.

2 To develop number and spatial sense and the ability to appreciate patterns and structures of number and shapes.

Course Outcomes: After completion of this course, student will be able to:

1 Students will be able to acquire basic knowledge about mathematics.

2 Students will understand the equations of straight lines, parallel lines, perpendicular lines, angle of bisectors between two lines, point of intersection of two straight lines, circle, area of triangle, quadrilateral and circle, calculations of calculus, functions, differentiation, integration, area of circle, triangle and quadrilateral, etc.

3 Students will develop ability to apply mathematical calculations in agriculture.

4 Students will validate the mathematical equation of straight lines, parallel lines, perpendicular lines, angle of bisectors, circle, calculus, functions, differentiation, integration, area of circle, triangle and quadrilateral, etc. with hypothetical values.

Pre-requisite of course: Basic knowledge regarding mathematical concepts

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
2	0	0	50	30	20	0	0

Contents : Unit	Topics	Contact Hours
1	**Differential Calculus** Definition of function and limit & Limit Ex., Definition of Continuity and its Ex., Definition of Differentiation and its Ex., Differentiation of some special fun. By Def.	4
2	**Properties of Derivatives** Derivatives of sum and difference, Derivatives of product of two functions, Derivatives of Quotient of two functions	3
3	**Diff.of fun.of a fun.** Differentiation of function of a function	3

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Contents : Unit	Topics	Contact Hours
4	**Logarithmic Differentiation** Examples based on Logarithmic differentiation	1
5	**Maxima & Minima of functions** Find maxima of a Function, Find Minima of a Function, Combined Practice Of Maxima & Minima	2
6	**Integral Calculus** Integration of simple functions, Integration of product of two functions, Definite Integral, Area under simple well-known curves	6
7	**Matrices & Determinants** Definition of Matrices and Determinant, Addition and subtraction of Matrices, Multiplication of matrices, Transpose & Inverse of Matrices, Properties of Determinants and their evaluation	6
Total Hours		**25**

Textbook :

1 NA, NA, NA, NA

References:

1 Mathematics for the biological sciences, Mathematics for the biological sciences, Arya J. C. and Larder R. W., Pearson, 1979

2 Integral calculus, Integral calculus, Shanti Narayan and Mital P. K., S. Chand, 2005

3 Text book of Matrix Algebera, Text book of Matrix Algebera, Biawas S., PHI Learning, 2015

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking**
25.00	25.00	20.00	10.00	10.00	10.00

Instructional Method:

1 The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board may also use any of tools such as demonstration, role play, quiz, brainstorming, MOOCs etc.

2 The internal evaluation will be done on the basis of continuous evaluation of students in the class-room.

3 Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory.

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