



**Darrang College
(Autonomous),
Tezpur-784001**

**Syllabus for
FYUGP
Mathematics
(SEC)**

Approved by :

**Board of Studies meeting held on 28th July, 2025
&**

Academic Council vide Resolution no. 04, dated- 12/08/2025

Aims of Four Year Under Graduate Programme in Mathematics is to foster a comprehensive understanding and appreciation of Mathematics through innovative teaching, research and application, equipping students with the skills to solve real world problems and advance in their academic and professional pursuits.

Program Outcome: The completion of the FYUGP shall enable a student to:

- Communicate mathematics effectively by oral, written, computational and graphic means
- Create mathematical ideas from basic axioms
- Gauge the hypothesis, theorems, techniques and proofs provisionally
- Utilize mathematics to solve theoretical and applied problems by critical understanding, analysis and synthesis
- Identify applications of mathematics in other disciplines and in the real world, leading to enhancement of career prospects in a plethora of fields.
- Appreciate the requirement of lifelong learning through continued education and research.

Teaching learning process: The Department of Mathematics at Darrang College (Autonomous) is primarily responsible for organizing the Bachelor of Science/ Bachelor of Arts course with Major in Mathematics. Tutorial and practical related instructions are provided by the respective registering units under the general guidance of Department of Mathematics. There shall be 90 instructional days excluding examination in a semester.

Teaching learning tools: Teaching Learning Tools involves:

- Green-board teaching
- ICT tools- Projector, smart board etc.
- Course-based practical work using Desktop/Laptop computers.
- Along with these there are viva-voce, mock test, demonstration, presentation, classroom tests, and assignments.

The achievement of course is described in each course papers as learning outcomes in detail.

Evaluation/assessment:

The students registered for academic program will study Semester I to VIII at the Darrang College (Autonomous) and during these semesters Major, Minor and SEC courses are offered.

- English shall be the medium of instruction and examination for Major courses and English/Assamese for Minor courses.
- Examinations shall be conducted at the end of each Semester as per the Academic calendar notified by the Darrang College (Autonomous).
- The assessment broadly comprises of Internal Assessment (Sessional Examination, Assignments Presentation/Viva-Voce/Group Discussion, Attendance,) and End Semester Examination.
- Theory papers without practical/presentation consist of total 100 marks divided into 60 marks for theory, 40 marks for internal assessment.
- Theory papers with practical/presentation and Skill Enhancement Courses consists of total 100 marks divided into 60 marks for theory, 20 marks for internal assessment and 20 marks for Practical/Presentation.
- Internal assessment of 40 marks is comprises with 20 marks from sessional examination, 10 marks from assignment, 06marks for Presentation/Viva-Voce/Group Discussion and 4 marks from attendance (4 marks for above 75% attendance).
- Each practical paper will carry 30 marks including 25 marks for continuous evaluation and 2 marks for practical note book and 3 marks for the oral test or viva voce. Hardcopy of practical file has to be maintained by the students for each practical paper and has to be submitted in the concerned department at the time of examination
- Each presentation will carry 20 marks including 15 marks for continuous evaluation and 2 marks for presented report and 3 marks for the oral test or viva voce. The departments will decide the process of continuous evaluation for the task carried-out against the presentation. Hardcopy of the report has to be maintained by the students for each presented paper and has to be submitted in the concerned department at the time of examination.

Course Structure:

The program is a four year course divided into eight semesters. A student is required to complete 176 credits for the completion of course and the award of degree as Major student.

- 4 credit papers = 100 marks (60T+20IA+20P with practical)/ (60T+40IA without practical)
- Question pattern: ➤ For 100 marks papers (60T+40IA) [1 marks× 8 (no options), 2 marks × 6(10 options), 5 marks × 4 (8 options), 10 marks × 2 (5 options)]
- For 75 marks papers (45T+30P) [1 marks× 4 (no options), 2 marks × 3(no options), 5 marks × 3 (6 options), 10 marks × 2 (5options)]

CURRICULUM COMPONENTS

➤ Distribution of Credits in first 3 years:

Sl No.	Type	Credit
1	Major 15 x 4	60
2	Minor 06 x 4	24
3	SEC 3+3+3	09

- 1 CREDIT = 15 hours (one hour of classroom instruction per week)

*Skill-based courses may be worked out in line with the UGC guidelines under National Skill Qualification Framework (NSQF)/ National Credit Framework (NCrF)

➤ B. A. / B.Sc Course distribution for first year

Year	Semester	Course Code	Title of the course	Credit
	1 st Semester	MAT-MJ-01014	Algebra	4
		MAT-MN-01014	Algebra	4
		MAT-SEC-01013 (Major oriented)*	MS Power Point and LaTeX	3
		VAC	--	2

1st Year		MDC	--	3
		AEC	--	4
	Total	--	--	20
	2nd Semester	MAT-MJ-02014	Calculus	4
		MAT-MN-02014	Calculus	4
		MAT-SEC-02013 (Major oriented)*	Programming in C	3
		VAC	--	2
		MDC	--	3
		AEC	--	4
	Total	--	--	20

FOUR YEAR UNDERGRADUATE PROGRAMME IN MATHEMATICS
SEMESTER-I

Title of the course	MS Power Point and LaTeX
Course code	MAT- SEC-01013
Nature of Course	Skill Enhancement Course
Total Credit	03 (Theory: 02+ Practical: 01)
Contact Hours	60 (Theory 30+ Practical 30)
Total Marks	75 (End Term: 30, Internal Assessment: 20, Practical: 25)

Course Objectives: The purpose of this course is to acquaint students with the latest type setting skills, which shall enable them to prepare high quality typesetting, beamer presentation.

Learning Outcomes: After studying this course, the student will be able to:

- Create beamer presentations.
- Create Effective Presentations: Start a new presentation and apply appropriate slide layouts, Organize content using titles, bullet points, and sections.
- Format Slides Professionally: Apply and customize design themes, fonts, and colors, Use slide master to ensure consistency across slides.
- Create and typeset a LaTeX document
- Typeset a mathematical document using LaTeX
- Learn about pictures and graphics in LaTeX

Unit	Content	L	T	P	Total Hrs
I	MS Power Point: Setting Up PowerPoint Environment, Typing the text, Alignment of text, Formatting Text: Font Size, Font Style, Font Color, Use the Bold, Italic, and Underline, Cut, Copy, Paste, Select All, Gear text, Find & Replace, Saving, Printing, Export, Working with Tabs and Indents, Creating slides and applying themes, Inserting new slide, Duplicating slides, Changing layout of slides, Copying and pasting slide, Applying themes to the slide layout. [2] (20 Marks)	12	03	--	15
II	LaTeX: Elements of LaTeX; Hands-on-training of LaTeX, Graphics in LaTeX; PS Tricks, Beamer presentation. [1] Chapter: 9 (Sections:1,2), Chapter:10 (Section:3), Chapter:11 (25 Marks)	12	03	--	15

III	Practical: Based on Unit I and II.	--	--	15	30
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Text Book:

1. Satish Jain, M Geetha and Kratika, (2015). *Microsoft Office 2010 Training Guide*, BPB Publications.
2. Martin J. Erickson and Donald Bindner, (2011). *A Student's Guide to the Study, Practice, and Tools of Modern Mathematics*, CRC Press, Boca Raton, FL.

Reference Book:

1. L. Lamport, (1994). *LATEX: A Document Preparation System, User's Guide and Reference Manual*, Addison- Wesley, New York, Second edition.

FOUR YEAR UNDERGRADUATE PROGRAMME IN MATHEMATICS

SEMESTER-II

Title of the course	Programming in C
Course code	MAT-SEC-02013
Nature of Course	Skill Enhancement Course
Total Credit	03 (Theory: 02+ Practical: 01)
Contact Hours	60 (Theory 30+ Practical 30)
Total Marks	75 (End Term: 30, Internal Assessment: 20, Practical: 25)

Course Objectives: This course introduces C programming in the idiom and context of mathematics and imparts a starting orientation using available mathematical libraries, and their applications.

Learning Outcomes: After completion of this paper, student will be able to:

- Understand and apply the programming concepts of C which is important to mathematical investigation and problem solving.
- Learn about structured data-types in C and learn about applications in factorization of an integer and understanding Cartesian geometry and Pythagorean triples.
- Use of containers and templates in various applications in algebra.
- Use mathematical libraries for computational objectives.
- Represent the outputs of programs visually in terms of well formatted text and plots.
- In practical students learn about the roots of a quadratic equation, solution of an equation using N-R algorithm.

UNIT	CONTENT	L	T	P	Total Hrs
I	Variables, constants, variable declaration, initialization, basic data types, operators and expression (arithmetic, relational, logical, assignment, conditional increment and decrement), hierarchy of operations for arithmetic operators, size of and comma operator, mixed mode operation and automatic (Implicit) conversion, cast (explicit) conversion, library functions.	04	01	--	05

II	Structure of a C program, input/output functions and statements, control statements: if-else statement (including nested if-else statement), switch statement, Loop control Structures (for and nested for, while and do-while). Break, continue, go to statements, exit function.	08	02	--	10
III	Arrays and subscripted variables: One dimensional array declaration, accessing values in an array, initializing. values in an array, sorting of numbers in an array, addition and multiplication of matrices with the help of array.	13	02	--	15
IV	*Practical Based on Unit I, II, III, for example: to find ▪ Roots of a quadratic equation, ▪ Value of a piecewise defined function (single variable) ▪ Factorial of a given positive integer ▪ Fibonacci numbers ▪ square root of a number, cube root of a number ▪ sum of different algebraic and trigonometric series ▪ a given number to be prime or not ▪ sum of the digits of any given positive integer ▪ solution of an equation using N-R algorithm ▪ reversing digits of an integer ▪ Sorting of numbers in an array ▪ to find addition, subtraction and multiplication of matrices [1] Chapters 3, 4, 5, 6, 7 and 9	--	--	15	30

Text books:

1. T. Jeyapoovan, A First Course in Programming with C T. Jeyapoovan, Vikash Publishing House Pvt. Ltd.

Reference books:

1. E. Balaguruswamy, Programming with C. Schaum Series.
2. Y. Kanetkar, Let us C, B.P. Publication.