



सत्यमेव जयते

Government of Maharashtra



HBSU

Dr. Homi Bhabha State University

Dr. Homi Bhabha State University, Mumbai

The Institute of Science, Mumbai

ESTD 1920

Department of Mathematics

2025 - 2026

$$B \lim_{x \rightarrow 1} \frac{ctgx - 2}{2^{1/x} - 3}$$

$$+ y^2 = z \quad S_3 = \begin{bmatrix} 10 & 0 \\ 10 & 1 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\int (x \pm a)^c \quad \sum_{n=1}^{\infty} \frac{A^n - C^n}{n}$$

$$\phi = \sqrt{\frac{\sum (x-m)^2}{n-1}} \quad s = \int_0^{\infty} 5t dt$$

$$\pi \approx 3.1415 \quad \sin x$$

$$P = r^2 \pi \quad (x+y)^2 = \left(\frac{y}{2}\right)^2 \quad \frac{\Delta x}{\Delta y} = \lim_{\Delta y \rightarrow 0} \frac{\Delta x + 2}{\Delta y - 1}$$

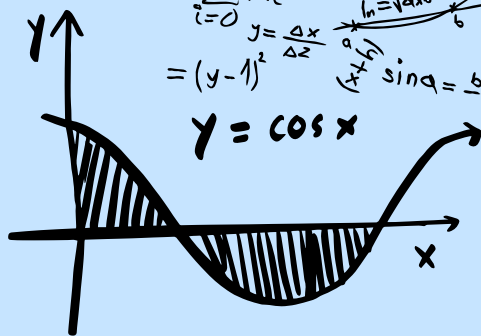
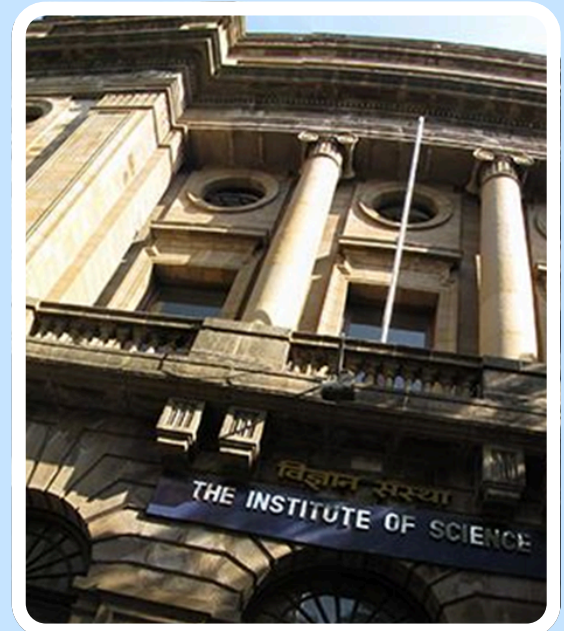
$$\Delta t = T - \frac{3a}{x} \quad 8x = 4 - 3y^2 \quad (x+a)^2 = x^2 + 2ax + a^2 \quad \tan x$$

$$(x-y) \quad y = 2x^2 + 3x \quad \ln x = \frac{b \pm (a-c)}{\sqrt{2a}}$$

$$f = \frac{\sqrt{x+a}}{x} \quad e = 2.79 \quad e = \cos x + tgy \quad \tan(2a) = \frac{2 \tan(a)}{1 - \tan^2(a)}$$

$$P = \sum_{i=0}^{\infty} x^i \quad \ln = \sqrt{axb} \quad \sum_{n=0}^{\infty} \frac{x^n}{n!}$$

$$j = \frac{\Delta x}{\Delta z} \quad \sin a = b \quad \triangle ABC \quad a^2 + b^2 = c^2$$



15, Madame Cama Road, Mumbai, Maharashtra 400032

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ABOUT THE DEPARTMENT

The Department of Mathematics at The Institute of Science, led by Professor Selby Jose, offers two postgraduate programs: M.Sc. Mathematics and M.Sc. Data Science. In 2019 and again in 2023 (as per NEP), the curriculum was updated to meet industry standards, benefiting students who have been placed in various companies. A highlight was the launch of M.Sc. Data Science in 2021-2022, reflecting the department's commitment to meet the demand for data science education. The department emphasizes research quality and faculty development, often organizing webinars and workshops. SIGMATICS, an annual event, promotes mathematics among school students. Workshops are held to prepare students for teaching eligibility tests. The department provides a mini library with over 600 books and e-books. Overall, the department aims to excel with the collaboration of students, faculty, and the university.

A MESSAGE FROM THE HOD

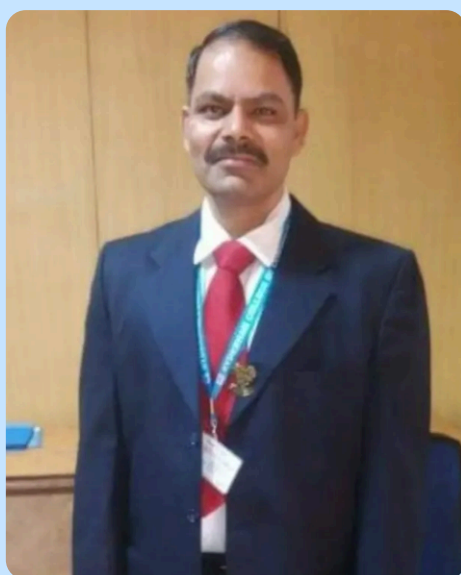


Prof. Selby Jose

Welcome to the Department of Mathematics at The Institute of Science! We offer M.Sc. Mathematics and M.Sc. Data Science programs with 40 intake capacity. Our curriculum is aligning with industry standards. We're proud of launching M.Sc. Data Science to meet the demand. Faculties are engaged in research and in academic events. SIGMATICS, our annual outreach program, celebrates National Mathematics Day, promoting math among school students. Organizes workshops to prepare students for teaching careers. Our mini library and reading room offer ample resources.

The Department of Mathematics worked diligently to give its best to the institute and students. With the synergies of the students, faculty and the University we wish to move forward in this direction in a more focussed manner.

FACULTY MEMBERS



Dr. Sunil Devendranath Singh

PROGRAMMES WE OFFER

M.Sc. Mathematics

ELIGIBILITY CRITERIA

For M.Sc. Mathematics eligibility is - B.Sc Mathematics from a Recognized University.

Mode of Selection is merit based.

MATHE

BOARD OF STUDIES

Professor Selby Jose (Chairperson)

Professor Shrinivas Dhure (Member)

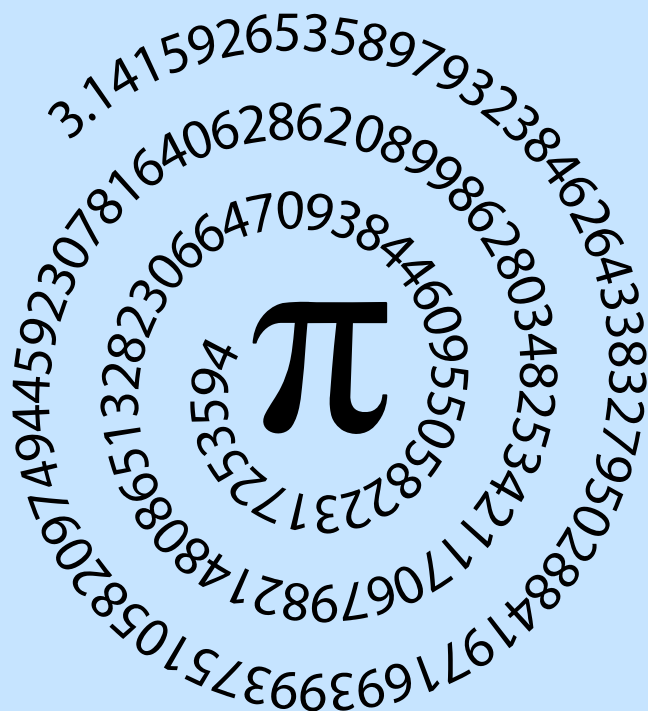
Dr. Sunil Singh (Member)

Mrs. Sangita Joshi (Member)

Mrs. Vijaya Yeole

KEY FEATURES

The Department has a mini library with 600+ books, e-books and a dedicated reading room for the students to increase efficiency and knowledge.



CREDIT DISTRIBUTION (NEP)

M.Sc. (Mathematics) Semester I

Course	Course Code	Course Name	Credits	Teaching Scheme				Examination Scheme						
				Lecture Per Week	Practical per Week	Total Periods	Duration in Hours	Theory				Practical		
								Max. Marks (Theory)	Max. Marks (Internals)	Total Marks	Minimum Passing Marks	Max Marks	Total Marks	Minimum Passing Marks
DSC1	MSMTDC101T	Linear Algebra	4	4	--	4	4	60	40	100	40	--	--	--
DSC2	MSMTDC102T	Real and Complex Analysis	4	4	--	4	4	60	40	100	40	--	--	--
DSC3	MSMTDC103T	Differential Calculus	2	2	--	2	2	30	20	50	20	--	--	--
DSC4	MSMTDC104T	Ordinary Differential Equations	2	2	--	2	2	30	20	50	20	--	--	--
DSE1 (Any One)	MSMTDE101T	Probability Theory	4	4	--	4	4	60	40	100	40	--	--	--
	MSMTDE102T	Integral Transforms	4	4	--	4	4	60	40	100	40	--	--	--
RM	MSMTRM101T	Research Methodology	4	4	--	4	4	60	40	100	40	--	--	--
DSE1 (Any One)	MSMTDE101P	Probability Theory LAB	2	--	8	8	4	--	--	--	--	50	50	20
	MSMTDE102P	Integral Transforms LAB	2	--	8	8	4	--	--	--	--	50	50	20

M.Sc. (Mathematics) Semester II

Course	Course Code	Course Name	Credits	Teaching Scheme				Examination Scheme						
				Lecture Per Week	Practical per Week	Total Periods	Duration in Hours	Theory				Practical		
								Max. Marks (Theory)	Max. Marks (Internals)	Total Marks	Minimum Passing Marks	Max Marks	Total Marks	Minimum Passing Marks
DSC5	MSMTDC201T	Group Theory	4	4	--	4	4	60	40	100	40	--	--	--
DSC6	MSMTDC202T	Topology	4	4	--	4	4	60	40	100	40	--	--	--
DSC7	MSMTDC203T	Optimization Techniques	2	2	--	2	2	30	20	50	20	--	--	--
DSC8	MSMTDC204T	Partial Differential Equations	2	2	--	2	2	30	20	50	20	--	--	--
DSE2 (Any One)	MSMTDE201T	Measure Theory and Integration	4	4	--	4	4	60	40	100	40	--	--	--
	MSMTDE202T	Differential Geometry	4	4	--	4	4	60	40	100	40	--	--	--
DSE2 (Any One)	MSMTDE201P	Measure Theory and Integration LAB	2	--	8	8	4	--	--	--	--	50	50	20
	MSMTDE202P	Differential Geometry LAB	2	--	8	8	4	--	--	--	--	50	50	20
FP/OJT	MSMTFP201T/MSMTOJ201P	Field Project/OJT	4	4	--	4	4	60	40	100	40	--	--	--

M.Sc. (Mathematics) Semester III

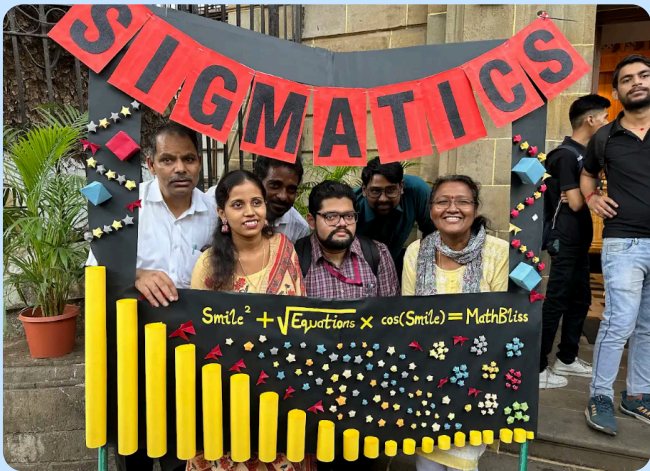
Course	Course Code	Course Name	Credits	Teaching Scheme				Examination Scheme						
				Lecture Per Week	Practical per Week	Total Periods	Duration in Hours	Theory				Practical		
								Max. Marks (Theory)	Max. Marks (Internals)	Total Marks	Minimum Passing Marks	Max Marks	Total Marks	Minimum Passing Marks
DSC1	MSMTDC301T	Rings and Modules	4	4	--	4	4	60	40	100	40	--	--	--
DSC2	MSMTDC302T	Functional Analysis	4	4	--	4	4	60	40	100	40	--	--	--
DSE1 (Any One)	MSMTDE301T	Algebraic Topology	4	4	--	4	4	60	40	100	40	--	--	--
	MSMTDE302T	Calculus of Manifolds	4	4	--	4	4	60	40	100	40	--	--	--
	MSMTDE303T	Coding Theory	4	4	--	4	4	60	40	100	40	--	--	--
	MSMTDE304T	Commutative Algebra	4	4	--	4	4	60	40	100	40	--	--	--
	MSMTDE305T	Data Structure and Algorithm Using Python	4	4	--	4	4	60	40	100	40	--	--	--
	MSMTDE306T	Operations Research	4	4	--	4	4	60	40	100	40	--	--	--
	MSMTDE307T	Representation Theory of Finite Groups	4	4	--	4	4	60	40	100	40	--	--	--
DSC3	MSMTDC303T	Mathematical Logic	2	2	--	2	2	30	20	50	20	--	--	--
DSC4	MSMTDC304T	Calculus of Variations	2	2	--	2	2	30	20	50	20	--	--	--
LAB	MSMTLB301P	Computational Mathematics LAB	2	--	8	8	4	--	--	--	--	50	50	20
RP	MSMTRP301P	Research Project	4	4	--	4	4	--	--	--	--	100	100	40

M.Sc. (Mathematics) Semester IV

Course	Course Code	Course Name	Credits	Teaching Scheme				Examination Scheme						
				Lecture Per Week	Practical per Week	Total Periods	Duration in Hrs	Theory				Practical		
								Max. Marks (Theory)	Max. Marks (Internals)	Total Marks	Minimum Passing Marks	Max Marks	Total Marks	Minimum Passing Marks
DSC1	MSMTDC401T	Field Theory	4	4	--	4	4	60	40	100	40	--	--	--
DSC2	MSMTDC402T	Fourier Analysis	4	4	--	4	4	60	40	100	40	--	--	--
DSE1 (Any One)	MSMTDE401T	Algebraic Geometry	4	4	--	4	4	60	40	100	40	--	--	--
	MSMTDE402T	Algebraic Number Theory	4	4	--	4	4	60	40	100	40	--	--	--
	MSMTDE403T	Algorithmic Trading	4	4	--	4	4	60	40	100	40	--	--	--
	MSMTDE404T	Cryptography	4	4	--	4	4	60	40	100	40	--	--	--
	MSMTDE405T	Graph Theory	4	4	--	4	4	60	40	100	40	--	--	--
	MSMTDE406T	Logic and Computability	4	4	--	4	4	60	40	100	40	--	--	--
	MSMTDE407T	Machine Learning	4	4	--	4	4	60	40	100	40	--	--	--
DSC3	MSMTDC403T	Integral Equations	2	2	--	2	2	30	20	50	20	--	--	--
LAB	MSMTLB401T	Numerical Analysis Using MathLAB LAB	2	2	--	2	2	30	20	50	20	--	--	--
RP	MSMTRP401P	Research Project	6	--	12	12	12	--	--	--	--	150	150	60

FESTS & EVENTS

**SIGMATICS - an annual outreach program
to promote Mathematics among school
students**



INTERNSHIP, PLACEMENT & JOB OPPORTUNITIES

In the Department of Mathematics, we prioritize real-world application and career readiness. With a solid foundation in mathematics and interdisciplinary skills, our students are prepared to seize promising job opportunities in a competitive global market.

CONTACT DETAILS

mathematics@iscm.ac.in

Prof. Selby Jose - 9820396774

Dr. Sunil Singh - 8369632216

