



डॉ. बी. आर. अम्बेडकर विश्वविद्यालय दिल्ली

Dr. B. R. *Ambedkar* University Delhi

KASHMERE GATE, NEW DELHI · STATE UNIVERSITY, NCT OF DELHI · EST. 2008

· ADMISSIONS OPEN ·
Academic Year

2026

· REVISED CURRICULUM · NEP 2020 ALIGNED

B.Sc. *Mathematics*

with Minor in Data Sciences & AI

A future-ready interdisciplinary programme blending rigorous mathematical foundations with modern computing, data science, AI, and India's mathematical heritage.

$$e^{i\pi} + 1 = 0$$

$$\nabla \times \mathbf{B} = \mu_0 \mathbf{J} + \mu_0 \epsilon_0 \frac{\partial \mathbf{E}}{\partial t}$$

$$f(z) = \sum a_n z^n$$

$$\Gamma(n+1) = n!$$

$$D^q f(x) = ?$$

% LAB SESSIONS ATTACHED TO COURSES — PYTHON · C++ · MATHEMATICA · R PROGRAMMING · EXCEL · LATEX

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ABOUT THE PROGRAMME

The **B.Sc. Mathematics with Minor in Data Sciences & AI** at AUD is a credit-based undergraduate programme offering rigorous mathematical training alongside modern computational and AI skills. Grounded in NEP 2020, it spans eight semesters with a flexible, multidisciplinary framework covering pure mathematics, applied mathematics, data science, and Indian mathematical heritage.

ELIGIBILITY & ADMISSION

- Class 10+2 pass from recognised board
- Mathematics as a subject in 10+2
- Admission via **CUET-UG**
- Relaxation for SC/ST/OBC/PwD as per norms

CAREER PROSPECTS

- Data Science & AI Research
- Academic & Research Institutions
- Financial Mathematics & Actuarial
- Cryptography & Cyber Security
- Postgraduate Studies (M.Sc / PhD)

PROGRAMME OBJECTIVES

01

Strong foundations in pure & applied mathematics through structured credit-based progression.

02

Computational skills via Python, C++, Quantitative Methods and logic-driven problem solving.

03

Exposure to Data Science, AI, Machine Learning, Artificial Neural Networks, Optimisation & Mathematical Modelling.

04

Interdisciplinary thinking through minor courses, electives & Indian mathematical knowledge.

INTERNSHIP & INDUSTRY EXPOSURE

INTERNSHIP

Students undertake internship during programme with industry, research labs, or government bodies, applying mathematical & computational skills to real-world problems.

ELIGIBLE SECTORS

Data Analytics firms, FinTech, EdTech, DRDO/ISRO/CSIR labs, actuarial & insurance companies, software development, and academic research institutions.

INTERNSHIP CREDIT

Internship is credit-bearing under the NEP 2020 framework. Students submit a project report & presentation evaluated by faculty for academic credit.

OUTCOMES

Hands-on industry experience, professional network building, domain specialisation, and competitive edge for placements & postgraduate admissions.

B.SC. WITH RESEARCH (HONOURS)

B.Sc. Mathematics *with Research*

Under NEP 2020, students maintaining a strong CGPA (≥ 7.5) are eligible for the **B.Sc. (Hons. with Research)** pathway. This 4-year programme culminates in an independent research dissertation in the final year, supervised by a faculty mentor, enabling students to contribute original work to mathematics or its applications. This pathway is ideal for students aspiring to pursue **M.Sc, PhD, or careers in research & academia**.

KEY CORE COURSES (DSC)

FOUNDATIONS & ANALYSIS

- Calculus & Multivariable Calculus
- Real Analysis I & II
- Probability & Statistics

ALGEBRA

- Linear & Abstract Algebra
- Advanced Algebra & Galois Theory
- Module Theory

APPLIED & ADVANCED

- Differential Equations (ODE & PDE)
- Numerical Analysis & Methods
- Linear Optimisation & Applications
- Metric Space & Complex Analysis

MULTIDISCIPLINARY

- Environmental Studies
- Communication Skills
- Critical Thinking & Writing
- Gender & Society

MINOR IN DATA SCIENCES & AI

AI & DATA SCIENCE

- Intro to AI & Machine Learning
- Artificial Neural Networks
- Data Science I & II
- Cryptography & Cyber Security
- Digital Imaging

DISCIPLINE SPECIFIC ELECTIVES (DSE)

- Number Theory
- General Topology
- Laplace Transform & Fourier Series
- Advanced Group Theory
- Module Theory

SEMINAR PAPERS

- Advanced Number Theory
- Special Functions
- Rings of Quotients & Polynomial Identities
- Symmetry Groups
- Fourier Approximation
- Advanced Algebra & Applications
- Topics in Mathematical Analysis

ENRICHMENT COURSES

SKILL ENHANCEMENT

- Python Programming for Mathematics
- Introduction to C++
- Quantitative Methods
- Logic and Reasoning

SOFTWARE USED

Python · C++ · Mathematica
R Programming · Excel · LaTeX

VALUE ADDED

- Indian Knowledge System
- History of Indian Mathematics I & II

PROGRAMME HIGHLIGHTS

- NEP 2020 aligned credit-based structure
- Minor in Data Sciences & AI
- Lab sessions & hands-on training
- Indian mathematical heritage
- Internship during programme
- B.Sc. with Research (Honours) pathway

DEPARTMENT FACULTY — AREAS OF EXPERTISE

PROFESSOR

Prof. Geetha Venkataraman

Finite Groups · Graphs defined on Groups · Mathematics Education

ASSISTANT PROFESSOR

Dr. Ramneek Guram

Algebraic Number Theory · Irreducibility of Polynomials · Valuation Theory

ASSOCIATE PROFESSOR

Dr. Deep Singh

Cryptography · Image Security · Quantum Computing · Abstract Algebra

ASSISTANT PROFESSOR

Dr. Mradul Veer Singh

Fourier Approximation · Mathematical Analysis

ASSOCIATE PROFESSOR

Dr. Balchand Prajapati

Ring Theory · Derivations · Abstract Algebra

ASSOCIATE PROFESSOR

Dr. Pranay Goswami

Fractional Calculus · Mathematical Modelling · Geometric Function Theory

ASSOCIATE PROFESSOR

Dr. Kranti Kumar

Artificial Intelligence · Traffic Flow Modelling · Deep Learning · FDE