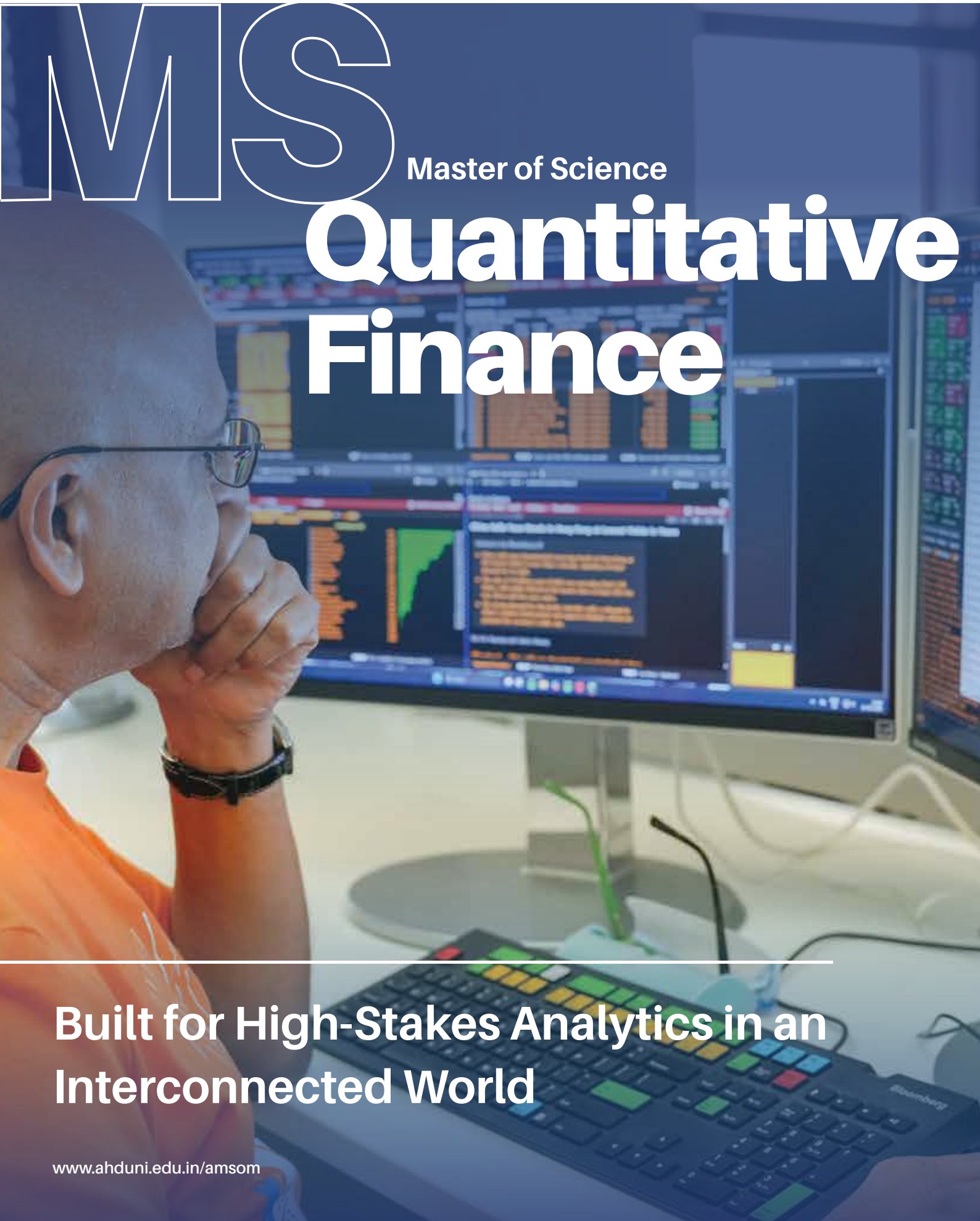
Ahmedabad University

MS

Master of Science

Quantitative Finance



Built for High-Stakes Analytics in an Interconnected World

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Master of Science in Quantitative Finance

Built for High-Stakes Analytics in an Interconnected World

Financial markets operate through formal models, algorithmic systems, and vast data flows that demand rigorous analytical frameworks. From stochastic processes in asset pricing to probability and econometrics in risk measurement, and optimisation in portfolio allocation, quantitative finance rests on mathematical and statistical foundations. Trading strategies integrate computation with inference, and financial institutions rely on disciplined quantitative reasoning to make decisions in complex and uncertain environments.

The Master of Science in Quantitative Finance (MSQF) at the Amrut Mody School of Management, Ahmedabad University, provides rigorous training in the mathematical, statistical, and computational foundations of modern finance.

Located within a comprehensive research university, the programme integrates mathematical depth with interdisciplinary insight, situating financial modelling within broader economic, technological, and regulatory systems.

The curriculum is analytically demanding and assumes strong grounding in calculus, linear algebra, and probability.

Why Study **Quantitative Finance at Ahmedabad University**

Over the last few years, global financial systems have evolved in scale, complexity, and computational intensity. Investment banks, asset management firms, hedge funds, exchanges, fintech companies, and regulatory institutions rely extensively on quantitative methods for pricing, forecasting, portfolio construction, and systemic risk evaluation.

A strong foundation in quantitative finance enables graduates to:

- Apply probability, statistics, and stochastic calculus to financial modelling
- Construct and validate computational models for pricing and risk management
- Analyse financial time series using econometric techniques
- Design algorithmic trading and portfolio optimisation frameworks
- Quantify and decompose risk through Value at Risk, Expected Shortfall, stress testing, and scenario analysis
- Evaluate financial systems within ethical and regulatory frameworks

At Ahmedabad University, quantitative finance is taught within an intellectual environment that includes mathematics, computer science, economics, and public policy. This context strengthens conceptual clarity and situates financial models within real institutional systems.

Scan to solve a quant puzzle - test your skills before you join the MSQF programme!

The Ahmedabad University Advantage

Interdisciplinary Depth within a Comprehensive University

Ahmedabad University is a comprehensive research university where finance is taught in active dialogue with mathematics, statistics, computer science, economics, and public policy. Students in the MSQF programme benefit from academic engagement across disciplines, enabling a deeper understanding of financial systems as embedded within economic, technological, and regulatory structures.

The flexibility to take electives across Schools and Centres allows students to strengthen mathematical foundations, computational capability, or economic reasoning in alignment with their academic interests.

Bloomberg Lab Enabled Learning
The Bloomberg Lab integrates real-time financial market data into coursework and projects. Students work with industry-standard analytical tools used by financial institutions, research organisations, and regulatory bodies.

This exposure strengthens the connection between formal modelling and live market systems.

Access to High Performance Computing
Students benefit from access to advanced High Performance Computing infrastructure that supports large-scale simulations, optimisation problems, econometric analysis, and data-intensive modelling.

This computational capability enables deeper engagement with stochastic modelling, time-series analysis, and algorithmic strategy development.

Strategic International Engagements
The University maintains global academic collaborations that enable exposure to international research environments and cross-border financial systems.

These engagements strengthen the academic depth and global orientation of the programme.

Engagement with GIFT International FinTech Institute
Ahmedabad University's association with the GIFT International FinTech Institute situates the MSQF programme within India's International Financial Services Centre ecosystem.

GIFT City hosts global financial institutions, exchanges, regulatory bodies, and fintech enterprises. This environment offers insight into cross-border capital flows, derivatives markets, regulatory architecture, and financial innovation.

For MSQF students, this institutional proximity provides a contextual understanding of how quantitative finance operates within live financial systems.

Programme Structure and Learning Pathways

Pre-Term (**Mandatory**): A focused preparatory phase that ensures mathematical and computational readiness. The pre-term includes multivariate calculus, linear algebra, differential equations, probability and statistics, Python programming, modelling with R, and technical communication. Students are also introduced to Bloomberg and key financial data platforms.

Core Courses: The core curriculum builds strong analytical depth across mathematics, statistics, economics, computer science, and finance. Students study stochastic calculus, econometrics, optimisation, asset pricing, corporate finance, derivatives and risk management, fixed income modelling, financial markets, and AI and machine learning applications in finance. Courses are sequenced to integrate mathematical theory, computational implementation, and financial decision-making.

Electives: Students choose advanced electives to deepen specialisation in areas such as financial engineering, credit derivatives, structured products, big data analytics, text analytics, non-linear dynamics, and advanced statistics. Electives allow focused pathways in quantitative modelling, risk analytics, algorithmic strategies, and data-driven finance.

Immersive Skill Workshop: Applied workshops provide hands-on training in Bloomberg analytics, R, Matlab, SQL, Python-based portfolio optimisation, blockchain and decentralised finance modelling, and generative AI for financial analysis and reporting.

Summer Internship: A mandatory summer internship enables students to apply quantitative tools in live industry settings across investment banking, asset management, fintech, consulting, and financial research.

Master's Capstone Project: In the final year, students undertake a supervised capstone project that integrates mathematical modelling, computation, and financial analysis through original research or applied industry problem-solving.

Career Pathways

The interdisciplinary design of the MSQF programme enables graduates to pursue analytically intensive roles across the global financial landscape. The curriculum combines mathematical rigour, computational implementation, and institutional awareness, allowing students to develop specialised pathways within a strong quantitative core.

Asset Management and Portfolio Construction

Students interested in portfolio design and capital allocation build depth through Asset Pricing, Derivatives, and Fixed Income, complemented by electives such as Algorithmic Portfolio Optimisation and Behavioural Finance.

This pathway develops capabilities in return optimisation, risk-adjusted performance measurement, and systematic portfolio construction.

Quantitative Trading and Market Strategy

This pathway develops the modelling expertise required for pricing, trading, and execution strategies. Coursework in Stochastic Calculus, Financial Econometrics, Optimisation, and Algorithmic Game Theory supports analytical approaches to systematic trading and market microstructure.

Students gain the ability to design, test, and refine quantitative trading models using structured statistical and computational methods.

Quantitative Research and Financial Modelling

For those inclined towards model development and advanced analytical research, the programme offers depth in Stochastic Calculus, Non-Linear Dynamics, Financial Econometrics, and advanced statistical methods.

This pathway prepares graduates for roles in quantitative research and strategy teams, and provides a strong foundation for doctoral study in quantitative finance, economics, applied mathematics, or related disciplines.

FinTech, Algorithmic Systems, and Data Science

Students seeking engagement with digital finance and emerging financial technologies combine core quantitative training with modules in AI and Machine Learning Applications in Finance, Blockchain and DeFi Protocol Modelling, and data-intensive analytics.

Engagement with the GIFT International FinTech Institute strengthens understanding of financial market infrastructure, digital assets, and regulatory frameworks within the International Financial Services Centre ecosystem.

Risk Analytics, Management, and Regulation

This pathway develops expertise in structured risk measurement and institutional governance. Students build proficiency in Value at Risk, Expected Shortfall, stress testing, and scenario analysis, alongside modules in Business Ethics and regulatory frameworks.

Graduates are prepared for roles in market risk, credit risk, enterprise risk management, and financial regulation within complex institutions.

Each pathway is supported by electives, capstone projects, internships, and industry engagement. Students retain flexibility to tailor their academic trajectory while maintaining rigorous quantitative foundations.

Curriculum Structure

QUARTER 1

Communications 1

Asset Pricing - Theory and Applications 1

Mathematical Methods for Economics

Corporate Finance 1

Financial Accounting 1

International Finance and FX - 1

Microeconomics: Markets and Decisions

SUMMER INTERNSHIP

QUARTER 2

Business Ethics

Asset Pricing - Theory and Applications 2

Stochastic Calculus 1

Corporate Finance 2

Financial Markets and Institutions

International Finance and FX - 2

Microeconomics: Firm Dynamics and Market Structures

QUARTER 3

Introduction to AI/ML - 1

Macroeconomics: Output, Inflation, and Employment

Stochastic Calculus Applied to Finance

Introductory Econometrics 1

Fixed Income and Term Structure Modelling 1

Elective

Financial Analytics using R / Matlab / SQL

QUARTER 4

Introduction to AI/ML - 2

Monetary, Fiscal Policy and International Economics

Financial Analytics using Bloomberg

Introductory Econometrics 2

Fixed Income and Term Structure Modelling 2

Elective

Skills Workshop

QUARTER 5

Derivatives and Risk Management - 1

Algorithmic Game Theory - 1

Financial Econometrics - 1

Optimisation in Finance - 1

Predictive Analytics - 1

Electives

QUARTER 6

Derivatives and Risk Management - 2

Algorithmic Game Theory - 2

Financial Econometrics - 2

Optimisation in Finance - 2

Predictive Analytics - 2

Electives

QUARTER 7

AI Frontiers - Part I

Options Alchemy - 1

Electives

Capstone

Elective / Skills Workshop

QUARTER 8

AI Frontiers - Part II

Options Alchemy - 2

Electives

Capstone

Elective / Skills Workshop

Core Courses and Electives

Mathematics

Mathematical Methods for Economics
Stochastic Calculus
Stochastic Calculus Applied to Finance

Statistics

Introductory Econometrics 1 & 2
Predictive Analytics 1 & 2
Optimization in Finance 1 & 2
Financial Econometrics 1 & 2 OR Time Series Econometrics 1 & 2

Computer Science

Introduction to AI/ML and AI/ML Applications in Finance
AI Frontiers: Building Intelligent Applications 1 & 2

Economics

Macroeconomics: Output, Inflation, and Employment
Monetary, Fiscal Policy and International Economics
Microeconomics: Markets and Decisions
Microeconomics: Firm Dynamics and Market Structures

Finance

Asset Pricing - Theory and Application 1 & 2
Corporate Finance 1 & 2
Derivatives and Risk Management 1 & 2
Financial Accounting 1
Financial Markets and Institutions
Fixed Income and Term Structure Modelling 1 & 2
International Finance and Concepts in Foreign Exchange 1 & 2
Algorithmic Game Theory for Managers 1 & 2
Options Alchemy / Exotic Options 1 & 2

Humanities

Communication
Business Ethics

Electives

Advanced Concepts in Statistics 1 & 2
Big Data Analytics 1 & 2
Non-Linear Dynamics 1 & 2
Data Analytics and Visualisation 1 & 2
Text Analytics 1 & 2
Credit Derivatives 1 & 2
Financial Engineering and Structured Products 1 & 2

Immersive Skill Workshops

Workshops provide applied exposure to industry-standard tools and contemporary computational techniques. These modules complement theoretical training with hands-on implementation.

- Financial Analytics using Bloomberg
- Financial Analytics using R, Matlab, and SQL
- Generative AI for Financial Analysis and Reporting
- Blockchain and DeFi Protocol Modelling
- Algorithmic Portfolio Optimisation with Python
- Generative AI and Large Language Models for Alpha Generation

Student Life

Life at Ahmedabad University is designed to be immersive, intellectually stimulating, and socially engaging. Learning extends well beyond classrooms through interactions across programmes, disciplines, and interests, creating a vibrant academic community.

Students participate in seminars, conferences, guest lectures, research forums, and student led initiatives that encourage dialogue and collaboration. Cultural events, clubs, and societies provide spaces for creative expression, leadership development, and community building.

Located in the heart of Ahmedabad, a UNESCO World Heritage City, the campus offers a unique blend of academic focus and cultural exposure. Students engage with the city's history, institutions, and contemporary life, enriching their learning experience and broadening perspectives.

Together, the campus environment and city context create an ecosystem where students learn not only from courses and faculty, but also from peers, ideas, and experiences that shape them as thoughtful professionals and citizens.

Student Residences

Student Residences offers students all the facilities for modern, comfortable, and secure living. The graduate living facilities symbolise the building of a community with respect for diversity in ideas, ways of living, food preferences, cultural practices, languages, and religions.

Located within a radius of one kilometre from Ahmedabad University's Central Campus, the residence offers twin sharing, air-conditioned accommodations. The hostel is subject to a three-tier security network, including guards, CCTV surveillance, and door alarms. Additional facilities include laundry, transportation to and from the campus, on-call medical services, internet, and more. The University campus also provides a variety of recreational opportunities and cafeterias.

Life at Ahmedabad

At Ahmedabad University, learning extends beyond the classroom. Vibrant student clubs, cultural events, and a robust support system create a strong community. On campus, students receive the support and resources they need to succeed.

Located in the heart of Ahmedabad, India's first UNESCO World Heritage City, the University offers a unique blend of academic excellence and cultural experiences. The city's vibrant mix of tradition and modernity provides an inspiring backdrop for holistic education and exploration. The city brims with opportunities for students who can participate in inter-college competitions, music and performance festivals and explore ancient monuments, vibrant markets, and more.

Placement Support

The Career Development Centre at Ahmedabad University works closely with students to support career preparation and professional development.

The Centre facilitates:

- Internship opportunities across financial institutions and analytics-driven firms
- Industry interactions, guest lectures, and employer engagement sessions
- Structured preparation for quantitative interviews and technical assessments
- Resume building, interview training, and career mentoring
- Corporate networking events and recruitment drives

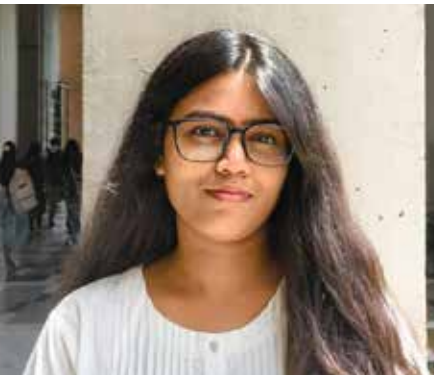
Given the analytical intensity of roles in quantitative finance, the Centre supports students in preparing for technical evaluations that assess modelling ability, probability reasoning, and computational proficiency. Through sustained industry engagement and alumni connections, the Career Development Centre strengthens the transition from academic training to professional practice.

Student Testimonials

The curriculum's strong focus on building knowledge of the financial markets added to my internship with the finance company, wherein my responsibilities included those professionals working in the traditional investment banking role. Several courses, especially the ones on financial modelling and financial markets, strengthened my foundation, made me aware, and trained me for this role. The internship further taught me the workings of the corporate sector, helped in skill upgradation, analyse complex global industry markets, develop a deep knowledge of investment valuation topics, and gave me the opportunity to work on pitchbooks. I believe this experience and hard work have also translated into a pre-placement offer from the company I interned for.

RAJ MANWANI

Class of 2025
Intern, Verity Knowledge Solutions



My interest in finance was ignited during my undergraduate studies, bringing theoretical subject matter to life. This inspired me to learn the core of finance, and Ahmedabad University, with its focus on quantitative methodologies, rigorous research, and application- based learning, emerged as the ideal choice for taking forward this learning. Additionally, the diverse peer group at the University contributes to a contextual understanding of the subject by offering immense exposure to different ideas s perspectives. Ahmedabad University also provides a comprehensive learning environment for building an enriching academic experience.

SHREE

Class of 2026

Students also pursued internship in several other firms such as National Stock Exchange, RATNAAFIN Capital, PI Square Investments, IIM Ahmedabad, Marwadi Shares and Finance Limited, and Fenil Financial Services to name a few.

Faculty

Bhargav Adhvaryu
Professor and Chair, PhD Programme
PhD (University of Cambridge)

Md Shahrukh Anjum
Assistant Professor
PhD (IIM Bangalore)

Harnain Kaur Arora
Assistant Professor
PhD (Indian Institute of Management Ahmedabad)

Shashank Aswathanarayana
Assistant Professor
PhD (University of California, Santa Barbara)

Niraj Athavle
Professor of Practice of Management and Programme Chair, MSQF
PGDM (IIM Bangalore)

Dinesh Barot
Assistant Professor
PhD (Gujarat University)

Gaurav Bhattacharya
Assistant Professor
PhD (Jawaharlal Nehru University)

Amrita Bihani
Assistant Professor and Assistant Director, Family Business and Entrepreneurship Programme
PhD (CEPT University)

Aranya Chakraborty
Assistant Professor
PhD (McGill University)

Bhanu Pratap Singh Choudhary
Assistant Professor
PhD (IIM Ahmedabad)

Pankaj Chandra
Professor, Vice Chancellor and Chairman, Board of Management
PhD (The Wharton School, University of Pennsylvania)

Jatin Christie
Senior Lecturer
PhD (Dharamsinh Desai University)

A Damodaran
Visiting Professor
PhD (University of Kerala)

Amit Das
Professor and Senior Associate Dean, Graduate Programmes
PhD (University of Minnesota)

Shobha Das
Dean and Professor
PhD (University of Minnesota)

Sabyasachi Das
Associate Professor
PhD (Yale University)

Supratim Das Gupta
Assistant Professor
PhD (University of South Carolina)

Satish Deshpande
Professor of Practice of Management
Executive Fellow Programme in Management (Indian School of Business)

Vedant Dev
Assistant Professor
PhD (IIM Ahmedabad)

Poonam Dugar
Assistant Dean and Assistant Professor
PhD (Gujarat University), Chartered Accountant

Aditya Ghosh
Professor
PhD (University of Heidelberg)

Arun Gupta
Assistant Professor
PhD (Yale University)

Nilesh Jain
Associate Professor
PhD (Indian Statistical Institute, Delhi)

Hetal Jhaveri
Assistant Professor
PhD (Sardar Patel University)

Jinraj Joshipura
Professor of Practice of Management
MS (Massachusetts Institute of Technology)

Sumit Kumar Jaiswal
Assistant Professor
PhD (IIM Ahmedabad)

Vaibhav Kadia
Assistant Professor and Academic Registrar
PhD(Ganpat University)

Amarlal H Kalro
Professor Emeritus and Former Provost
PhD (University of Minnesota)

Aditya Prakash Kanth
Associate Professor
PhD (National Museum Institute, New Delhi)

Molly Kaushal
Professor and Director, Centre for Heritage Management
PhD (Moscow State University)

Kaushalendra Kishore
Assistant Professor
PhD (University of Minnesota)

Atul Kumar
Assistant Professor
PhD (Indian Institute of Management Ahmedabad)

Samvet Kuril
Assistant Professor
PhD (IIM Ahmedabad)

Narendra Nath Kushwaha
Assistant Professor
PhD (IIM Tiruchirappalli)

Vinodh Madhavan
Professor
PhD (Golden Gate University)

Preeti Maneck
Senior Lecturer
PhD (Maharaja Sayajirao University of Baroda)

Faculty

Kunal Mankodi
Senior Lecturer
PhD (Ganpat University)

Bijal Mehta
Associate Professor
PhD (Sardar Patel University)

Ravi Miglani
Professor of Practice of Management
PGPM (IIM Ahmedabad)

Sanjoy Mukerji
Professor of Practice
PGDM (IIM Bangalore)

Prithwiraj Mukherjee
Associate Professor
PhD (ESSEC, France)

Priyoma Mustafi
Assistant Professor
PhD (University of Pittsburgh)

Darshana Padia
Assistant Professor and Assistant Director, The Venture Fellowship Programme
PhD (Saurashtra University

Sudhir Pandey
Senior Lecturer
PhD (University of Lucknow)

Jinal Parikh
Assistant Professor
PhD (Dharamsinh Desai University)

Parag Patel
Associate Professor and Dean of the Undergraduate College
PhD (Gujarat University)

Saptam Patel
Associate Professor and Assistant Dean, Undergraduate College
PhD (Gujarat University)

Minal Pathak
Associate Professor
PhD (Gujarat University)

Chakravarthi Rangarajan
Distinguished University Professor
PhD (University of Pennsylvania)

Rahul Rao
Assistant Professor
PhD (IIM Bangalore)

Mahendra Singh Rao
Associate Professor
PhD (XLRI Jamshedpur)

Binny Rawat
Senior Lecturer
PhD (Charusat University, Gujarat)

Subhankar Saha
Assistant Professor
PhD (Indian Institute of Management Bangalore)

Kinshuk Saurabh
Associate Professor
Fellow Programme in Management (IIM Ahmedabad)

Zalak Shah
Senior Lecturer
PhD (Gujarat University)

Saumil Shah
Senior Lecturer
MBA (Maharaja Sayajirao University of Baroda)

Deepti Sharma
Assistant Professor
PhD (Indian Institute of Management Bangalore)

Ekta Sharma
Associate Professor
PhD (University of Rajasthan)

Priyadarshi Shukla
Distinguished Professor and Chair, Global Centre for Environment and Energy
PhD (Stanford University)

Amit Singh
Assistant Professor
PhD (IIT Kharagpur)

Rahul Singh
Assistant Professor
PhD (IIM Bangalore)

Ramadhar Singh
Distinguished University Professor
PhD (Purdue University)

Abhinandan Sinha
Assistant Professor
PhD (Indian Statistical Institute, Kolkata)

Ramanathan Subramaniam
Associate Professor
PhD (University of Pittsburgh)

Mita Suthar
Associate Professor
PhD (Gujarat University)

Nimit Thaker
Lecturer
MCom (Gujarat University)

Sujo Thomas
Senior Lecturer
PhD (Gujarat University)

Devanath Tirupati
Executive Provost and Professor
PhD (Massachusetts Institute of Technology)

Vibha Tripathi
Assistant Professor
PhD (Gujarat University)

Bhaktida Satyendrabhai Trivedi
Assistant Professor
PhD (Gujarat University)

Tana Trivedi
Assistant Professor
PhD (Christ University, Bangalore)

Chirag Trivedi
Assistant Professor
PhD(Gujarat University)

Jeemol Unni
Professor
PhD (Gujarat University)

Sonal Yadav
Assistant Professor
PhD (Gujarat University)

Faculty from the School of Arts and Sciences, the School of Engineering and Applied Science, and the Bagchi School of Public Health also contribute to teaching in the MSQF Programme.

Admissions

Eligibility

- Applicants must have a minimum of 55% marks or equivalent across Class 10, Class 12 and Bachelor's degree.
- Applicants must hold a Bachelor's or Master's degree in Engineering, Computer Science, Mathematics, Statistics, Physics, Economics, Finance, or related quantitative disciplines.
- Strong preparation in calculus, linear algebra, probability, and statistics is expected.
- Applicants graduating in 2026 can also apply.

Accepted Entrance Examinations

- Applicants may submit valid scores from one of the following examinations: CAT, XAT, NMAT, CMAT, GMAT, GRE, GATE, JAM, CUET-PG (paper codes SCQP19 or SCPQ24 or SCQP27).
- The University may consider equivalent examinations subject to approval.
- Applicants who have not appeared for any one of the above tests or have low scores, can opt for AMSOM Test for MSQF. It will be a 90 minutes online test with 55 questions with no negative marking. The test would have questions on Calculus, Linear Algebra, Probability and Statistics, Basic Finance, Computational Cognizance, Reading Comprehension and Quantitative Analysis.

Selection Process

Admission to the MSQF programme is selective and merit-based.

Applications are evaluated holistically based on:

- Academic performance
- Quantitative preparation
- Entrance examination scores
- Statement of purpose
- Faculty interaction

Shortlisted candidates are invited for an interview that assesses analytical clarity, quantitative reasoning, and readiness for a mathematically intensive curriculum.

Offers are made based on overall merit.

Fees, Financial Aid and Refunds

The two-year tuition fee for the incoming class of 2026 is INR 14,00,000.

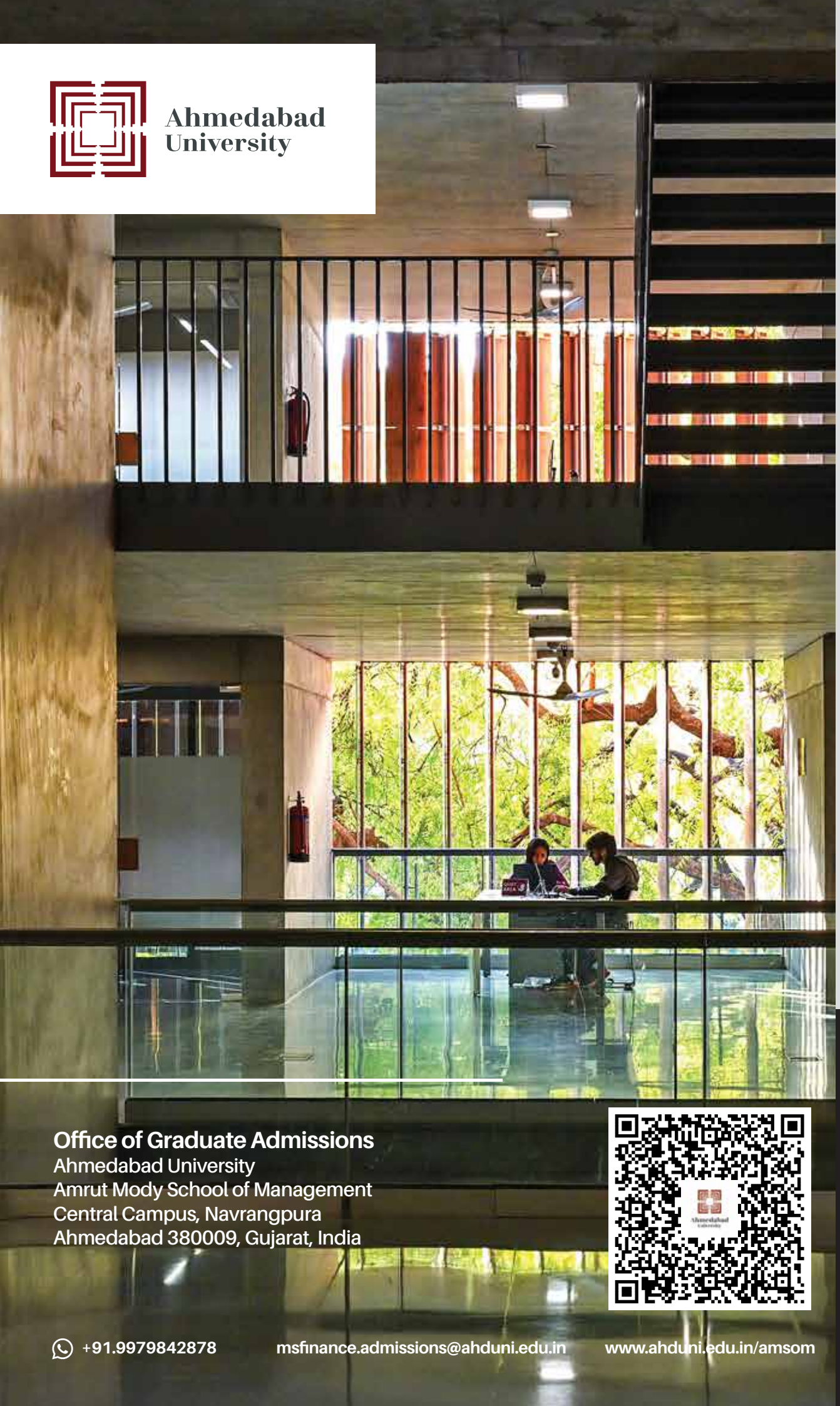
- The Tuition Fee will be payable in two equal installments (Monsoon and Winter Semester) every year, payable in advance at the beginning of each semester.
- Charges for participating in the Independent Study Period, Summer Semester, Immersions, and other additional services/offering to be collected separately.

Financial Aid

- Teaching Assistantships are available on the basis of merit. It provides a waiver of INR 1.25 lakh per year towards the tuition fee. Teaching Assistants are required to assist faculty members in the teaching of assigned courses both semesters. Continuation of this assistantship in the second year is contingent upon maintaining a satisfactory academic performance.

Refunds

- Refunds for withdrawal/cancellation of admission will be as per UGC Guidelines.



Ahmedabad University

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