NIRMA UNIVERSITY
Institute of Management
Master of Business Administration (Full Time) Programme/ Integrated Bachelor of Business Administration-Master of Business Administration Programme/ Master of Business Administration (Family Business & Entrepreneurship) Programme

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Course Code	**MFT5SEEF23 MBM5SEEF23 MFB5SEEF24**
Course Title	**Stochastic Calculus in Finance**

Course Learning Outcomes (CLO):
By the end of the course, the student will be able to:
1. Solve problems in financial mathematics.
2. Evaluate and correlate stochastic processes.
3. Estimate stochastic events in finance and related fields.

Syllabus	**Teaching Hours**
Unit I: Introduction to Probability Theory • Concepts of Probability • Binomial Asset Pricing Model	06
Unit II: Stochastic Theory and Models • Markov Property and Process • Radon-Nikodym Theorem • Brownian Motion • Ito Integral and Formula	12
Unit III: Stochastic Models and Application in Finance • Arbitrage Pricing • Bonds, forward contracts and futures • Term-structure models	12

Suggested Readings:

1. Shreve, S., Chalasani, P. and Jha, S.,*Stochastic Calculus and Finance*.
2. Steele, J.M., *Stochastic Calculus and Financial Applications*, Springer.
3. Etheridge, A. *A., Course in Financial Calculus*, Cambridge University Press.
4. Musiela, M., and Rutkowski, M.,*Martingale Methods in Financial Modelling*, Springer.
5. Shreve, S.,*Stochastic Calculus for Finance I: The Binomial Asset Pricing Model*, Springer.
6. Baxter, M., & Rennie, A.,*Financial Calculus*, CUP.
7. Etheridge, A. *A., Course in Financial Calculus*, CUP.
8. Lamberton, D., & Lapeyre, B.,*Introduction to Stochastic Calculus Applied to Finance*, Chapman & Hall.