Semester	Code	Module Title	Credits	C/E/O	GPA/NGPA
7,8	MA4150	Financial Mathematics	3	E	GPA

Hours/Week		Pre-requisites/Co-requisites	Evaluation (%)	
Lecture	Tute/Lab		CA	WE
3	0	MA2014	30	70

Learning Outcomes

After the successful completion of this course students should be able to
- Use the knowledge of financial mathematics in derivative market.
- Introduce new products for the derivative market.
- Involve in decision making in share / derivative market.

Syllabus Outline

Forward Contracts, Future Contracts, Options, Types of Trades, Hedgers, Speculators, One-step Binomial Models, Risk Neutral valuation, Two-Step Binomial Trees, A put examples, American options. The Markov property, Introduction to Stochastic Differential Equations and their application in Finance, Introduction to Wiener Process and its applications in Finance. Continuous time processes, The process for stock price, Ito's lemma.

The Black-Scholes-Merton model: Introduction of lognormal distribution**,** Lognormal property of stock price, The distribution of the rate return, The expected return, Volatility, Concept underlying Black-Scholes-Merton differential equation, Risk neutral valuation, Black-Scholes pricing formula.

Options of stock indices, currencies, and futures: Results for stock paying a known dividend yield, Options pricing formulas, Options on stock indices, Currency indices, Currency options, Future options, evaluation of future options using a binomial tree, Black's model for valuing future's options