19BSM606E: Financial Mathematics

Teaching Scheme					Examination Scheme					
L	T	P	C	Hrs/Week	Theory			Practical		TotalMarks
					MS	ES	IA	LW	LE/Viva	
3	--	--	3	3	25	50	25	--	--	100

OBJECTIVES

1. To make students understand about basics of interest.
2. To make students understand about different type of deterministic cash flows.
3. To make students understand about different type of random cash flows.
4. To make students understand about different mathematical models related to financial derivatives.

SYLLABUS

UNIT I	**8**

Basic Concepts: Arbitrage, Return and Interest, Time Value of Money, Bonds, Shares and Indices, Models and Assumptions.

UNIT II	**10**

Deterministic Cash Flows: Net Present Value (NPV), Internal Rate of Return (IRR), Comparison of IRR and NPV, Bonds price and yield, Clean and Dirty Price, Price – Yield Curves, Duration, Term structure of Interest rates, Immunisation, Convexity.

UNIT III	**10**

Random Cash Flows: Random Returns, Portfolio Diagrams and Efficiency, Feasible Set, Markowitz Model. .Financial Derivatives, options.

UNIT IV	**10**

Option pricing model, Black Scholes model.

APPROXIMATE TOTAL	**38 Hours**

OUTCOMES

1. Enable to calculate return and interest on bonds, shares etc.
2. Enable to understand deterministic cash flows, net present value, internal rate of return etc.
3. Enable to understand random cash flows, returns etc.
4. Enable to understand different kind of options.

TEXTS AND REFERENCES

1. The Calculus of Finance - Amber Habib, University Press,
2. Financial Calculus: An Introduction to Derivative Pricing Hardcover – Martin Baxter & Andrew Rennie
3. Introduction to Mathematics of Finance – R.J. Williams, American Mathematical Society.