MAMDC114T: Basics in Finance and Discrete Mathematics

Semester: I	Course Title: Basics in Finance and Discrete Mathematics	Credit: 2
Course No.: 114T	MDC-1(T)	Hours: 2/week

COs with Cognitive Abilities

COs	COGNITIVE ABILITIES	COURSE OUTCOMES
CO1	REMEMBERING	Describe the fundamental financial instruments and Identify arbitrage opportunities in financial markets
CO2	UNDERSTANDING	Discuss the returns and interest rates associated with financial cash flows. Apply the concept of time value of money, inflation and risk.
CO3	APPLYING	Choose methods such as Net Present Value (NPV) and Internal Rate of Return (IRR) to assess the profitability and feasibility of investment accurately.
CO4	ANALYSING	Analyze binary relations and their types, applying them in various mathematical contexts.
CO5	EVALUATING	Explain and interpret Hasse diagrams using POSET & LATTICE with their properties and applications.

CO-PO Mapping

	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	1	2	1		
CO 2	1	1	1		
CO 3	1	2	1		
CO 4		1	2		
CO 5	1	1	2		

Unit	Detailed Syllabus	No. of Hours of Teaching
I	**Interest rates and NPV, IRR.** Basic Concepts: financial instruments, Arbitrage, Return and Interest, Time Value of Money, inflation, NPV and IRR.	15
II	**Relations and Hase Diaram** Binary Relation, Reflexive, Irreflexive, Symmetric, Antisymmetric, Transitive, Partial Ordering (omit lexicographic ordering), Hasse Diagram, Upper bound, lower bound, lub, glb, Lattice as a poset, Properties of lattices	15

Suggested Reference Books:

1. Hull, J. C. Options, Futures and Other Financial Derivatives, Prentice Hall, 8th edition.
2. Amber Habib, The Calculus of Finance, Universities Press.
3. Capinski, Zastawniak, Mathematics for Finance: An Introduction to Financial Engineering, Springer
4. Boolean Algebra and its Application – J. E. Whitesitt, Addison-Wesley Publishing Co.Inc.

5. Foundation of Discrete Mathematics – K. D. Joshi, New Age International LimitedPublishers, ISBN 81-224-0120-1.
6. Logic and Boolean Algebra – B. H. Arnold, P H Inc LCCN62-19100.