

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPARTMENT/CENTRE: Department of Management Studies

1. **Subject Code:** BMN-681 **Course Title:** Basics of Quantitative Finance
2. **Contact Hours:** **L:** 3 **T:** 0 **P:** 0
3. **Examination Duration (Hrs.):** **Theory:** 2 **Practical:** 0
4. **Relative Weightage:** **CWS:** 50 **PRS:** 0 **MTE:** 0 **ETE:** 50 **PRE:** 0
5. **Credits:** 1.5 **6. Term:** IV/ V/VI/VII
7. **Pre-requisite:** Nil **8. Subject Area:** PEC
9. **Objective:** To impart knowledge of the contemporary mathematical framework for financial management.

10. Details of the Course

S.No.	Contents	Contact hours
1.	Relevance of probabilistic concepts in financial markets, moments, conditional expectations, binomial distributions.	5
2.	Normal distributions, attributes of lognormal distribution, relevance of lognormal distribution in financial modeling.	4
3.	Markov processes and their relevance, convergence of random variables	3
4.	Random walk processes, Brownian motion	3
5.	Differentiation in stochastic environment, integration in stochastic environment, the Ito integral	3
6.	Discrete time and continuous time martingales	3
Total		21

11. Suggested Books:

S.No.	Name of Authors/Book/Publisher	Year of Publication / Reprint
1.	Hull, J.C., "Options, Futures, and Other Derivatives", 7 th Ed., Prentice Hall	2009
2.	Neftci, S.N., "Introduction to the Mathematics of Financial Derivatives", 2 nd Ed., Academic Press	2000
3.	Cerny, A., "Mathematical Techniques in Finance: Tools for Incomplete Markets", 2 nd Ed., Princeton University Press	2009