PROF. ABHINAVA TRIPATHI
Department of Management Studies
IIT Kanpur

INTENDED AUDIENCE : Management students (Ph.D. and MBA), Commerce students (BCom, MCom), Chartered Accountants, Finance professionals (Investment analysts, banking professionals, accountants, credit analysts)

INDUSTRY SUPPORT : Business analytics: Mu Sigma Analytics, Fractal Analytics, Manthan. Latent View, Tiger Analytics, Absolutdata, Convergytics, UST Global; Equity research firms, Credit rating firms, Investment Banks, Corporate Banking sector, Corporate Finance roles across all corporates (ICRA, ICICI, HDFC, Nomura, Lehman Brothers, SBI Capital Markets, Deutsche bank, HSBC Bank, etc.)

COURSE OUTLINE :

Over the next few decades, machine-learning (ML) and AI will transform not only the finance industry but also other industries that borrow significantly from finance. This program has been carefully designed to help future analysts, traders, brokers, consultants and other industry professionals who are either currently exposed to, or foresee artificial intelligence, machine-learning and data science proliferate their work environment. The operating environment for investment management firms continues to evolve, with technological innovations and shifting investor preferences at the heart of this change. In that context, Artificial Intelligence (AI) is providing new opportunities to both professionals and investors. The objective of this course is to understand the application of Artificial Intelligence and Machine Learning techniques in financial markets, trading, and asset management. This program aims to demonstrate the applications of AI-based models in the finance domain. This includes solving real-life wealth management problems to improve investment decisions with AI.

ABOUT INSTRUCTOR :

Prof. Abhinava Tripathi is a Faculty of Finance and Accounting at Indian Institute of Technology, Roorkee. He has completed his Ph.D. degree from Indian Institute of Management, Lucknow. He has done his B-Tech. from Indian Institute of Technology, Roorkee and MBA from Indian Institute of Management, Kozhikode. He has more than 5 years of industry experience in investment banking, corporate banking, credit rating, and project finance advisory firms. His current research focuses on the subject of market-microstructure and liquidity in financial markets. Prof. Abhinava Tripathi has published research papers in international refereed journals, including the Journal of Asset Management, Studies in Economics and Finance, Finance Research Letters, and Managerial Finance.

COURSE PLAN :
Week 1: Introduction: financial markets, Risk-Return Analysis in Investment Decisions – Measures of Risk and Return
Week 2: Market Microstructure and Liquidity (Order-drive vs. Quote-driven markets)
Week 3: Portfolio Optimization in the Mean-Variance Framework – Two Security Case
Week 4: Portfolio Optimization in the Mean-Variance Framework – Multi Security Case
Week 5: Market efficiency and behavioral finance
Week 6: Overview of AI and machine learning models
Week 7: Non-linear machine learning models, deep learning, and credit modeling
Week 8: Model risk management, back testing, model validation, and stress testing
Week 9: Robo advisory, social and quantitative investing
Week 10: Machine learning for asset management
Week 11: AI and machine learning in Trading execution and portfolio management
Week 12: AI and machine learning in regulatory compliance and supervision