Tentative Schedule of the 3rd Quantitative Finance Workshop (QFW) being jointly conducted by IDRBT(INDIA), IGIDR(INDIA); IIT Kanpur(INDIA) and RPI(USA) during 14th – 17th, December 2011 at IDRBT, Hyderabad, INDIA

Instructors: IGIDR: Dr.Subrata Sarkar (**SS**) & Guest Faculty (**GF**); IIT Kanpur: Dr.Raghu N. Sengupta (**RNS**); RPI(USA): Dr.Aparna Gupta (**AG**) & Dr.John Teall (**JT**); IDRBT: Dr.V.N.Sastry (**VNS**) & Dr.V.Ravi (**VR**)

Date/Day	Timing	Day/Session #/ Instructor	Title	Detail description
1st Day (14/12/2011) Wednesday	0900-1030 hours	**1/1/AG**	Quantitative Financial Models	Introduction to some quantitative models typically used by finance practitioners: Beta estimation for capital asset pricing; GARCH models for returns, variances and co variance estimation; models for derivative pricing
	1100-1230 hours	**1/2/RNS**	Quantitative Methods-I (Probability and Statistics)	Introduction to random variables; Summary statistics; Probability distributions; Testing and inference; Ordinary Least Squares estimation; Maximum Likelihood estimation; Properties of estimates; Forecasting.
	1400-1530 hours	**1/3/RNS**	Quantitative Methods-II (Optimization and Stochastic Processes)	Basics of Optimization (LP, NLP, QP, 0-1, MIP, etc.), Stochastic Processes and Calculus
	1600-1730 hours	**1/4/VR**	Quantitative Methods-III (Time Series Analysis, Forecasting and Neural Networks)	Time series models, Forecasting methods and Neural Networks with applications to Bankruptcy prediction and Exchange Rate prediction.
			Take home work assignment for day 1	
2nd day (15/12/2011) Thursday	0900-1030 hours	**2/1/VNS**	Multi-Objective Optiumization Methods, Fuzzy Optimization, Fuzzy Control and Stochastic Programming	Pareto Optimality, Decision Making under uncertainty, Fuzzy Optimization, Fuzzy Goal Programming, Fuzzy Control and Stochastic Programming Models, Application to Asset Liability Management and Portfolio Management.
	1100-1230 hours	**2/2/AG**	Quantitative Method –IV (Simulation)	Concepts of simulation, Input distribution selection, Random number generator, random variables generation, Output analysis, Variance reduction
	1400-1530 hours	**2/3/GF**	Intro to Estimation/Computing Environment	Introduction to the public domain statistical software - R
	1600-1730 hours	**2/4/ GF**	Intro to Estimation/Computing Environment	Using R for financial computing and estimation
			Take home work assignment for day 2	
3rd Day (16/12/2011) Friday	0900-1030 hours	**3/1/VNS**	Bond Pricing, Risk Measures, Regulatory Capital Computation	Bond Characteristics, Computation of PV, NPV, IRR, YTM, Duration , Modified Duration, Convexity, Gap, Duration Gap, Interest Rate sensitivity, Regulatory Capital for Banks;
	1100-1230 hours	**3/2/JT**	Mutual Funds	General characteristics of Mutual Funds, Open and Closed ended funds, Calculation of NAV, Concepts of redemption fees, Deferred sales loads, Concepts of index funds, Stock funds, Bond funds, Money market funds
	1400-1530 hours	**3/3/JT**	Investment Analysis	Investment methods, Economic analysis, Industry analysis, Efficient Markets, Valuation Process, Pricing of bonds, Evaluation of portfolio performance and security analysis
	1600-1730 hours	**3/4/JT**	High Frequency Trading	Performance measurement and tracking of portfolios and different investment measures (risk, return, combination of risk and return)
			Take home work assignment for day 3	
4th Day (17/12/2011) Saturday	0900-1030 hours	**4/1/SS**	Risk Analysis – I	Volatility Modeling: ARCH, GARCH, EGARCH, GJR-GARCH; Applications
	1100-1230 hours	**4/2/SS**	Risk Analysis – II	Modeling Default Risk, Probit and Logit Models; Applications
	1400-1530 hours	**4/3/AG**	Derivative Pricing	Introduction to Derivative Pricing, Binomial Tree, Weiner Process, Ito's Lemma, Black-Scholes Model, Equity Derivative, Interest rate Derivative
	1600-1730 hours	**4/4/AG**	Risk Management	Risk Management Framework, Tools for risk management, Hedging strategies, Derivatives for Market risk, Credit derivatives, Asset Liability Management

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