

2nd cycle (MA): Economic Informatics

University year: **2009 – 2010**

Course	THE INFORMATICS OF THE EQUITY MARKETS						
Course Code	01010101AS511234A	Credit Points	6	Hours Number per semester/activities			
				Total	C	S	L/P
				56	28	-	28
Beneficiary Faculty	Faculty of Cybernetics, Statistics and Economic Informatics			Year of Study		2 Master	
				Semester		1	
Master Program	Economic Informatics						
Formative course category: F – fundamental, S – specialization, C – complementary							S
Optionally course category: O – mandatory, A – optional, F – facultative, S – special							A
Prerequisites	Mandatory			-			
	Recommended			-			
Objectives	<ul style="list-style-type: none"> Master the architectural models used in designing high performance trading systems. Assimilate the specific technology employed by the distributed processing of the capital market data. 						
Content	<p>Distributed Architectures in Processing the Capital Market Data - Distributed systems: distributed data, distributed algorithms; the client-server model; trading systems design; remote procedures and remotely accessed objects (web services, SOAP, AXIS); SOA approach – MOM paradigm: JMS, OpenMQ.</p> <p>Data Sources Related to the Capital Market – Data Collecting and Persisting Models - Real time data sources, delayed data sources disseminated by the stock exchange: approaches and APIs; relational data base models for persisting capital market data.</p> <p>Information Models in Fundamental Analysis of the Market Securities - Analysis of the capital structure; identifying the discrepancies between the market price, and the intrinsic value of the company.</p> <p>Information Models in Technical Analysis of the Market Securities - Price and volume evolution charts: line, bar, Japanese candlesticks; historical data: arithmetical scales, semi-logarithmic scales; determining the support and resistance points.</p> <p>Trend Identification and Pattern Recognition in Capital Market Evolution - Determining the trend: stopping points, trend reversal; moving averages in determining trend tendency; moving average envelopes: percentage envelopes, Bollinger bands, Keltner bands; Elliot wave theory, Fibonacci series.</p> <p>Capital Market Data Mining - Stock Screening Models - Screening models based on the fundamental data; models for identifying the patterns of trend formation; cycles and trend confirmation: volume oscillation, measuring momentum.</p> <p>Simulation Models - Algorithms for stock exchange order matching; trading simulation with an open number of agents; pricing the derivatives of the financial instruments - Black-Scholes model, volatility impact, Monte Carlo simulation; models for evaluating and controlling the risk of a portfolio of financial instruments.</p>						
Evaluation Form	(E – exam, V – during semester evaluation, C – discussion- oral examination)						E
Assesment Percentage	Final Exam						50%
	Project (graduation mark is a mandatory prerequisite for entering the final examination)						50%
References	<ul style="list-style-type: none"> Arsene Cătălin, Marin Dumitru – <i>Modelarea deciziei pe piețele financiare</i> – Editura ASE, București, 2007 Ghilic-Micu Bogdan - <i>Bursa de Valori</i> - Editura Economică, București, 1997 Harris Larry – <i>Trading and Exchanges</i> – Oxford University Press, Oxford, 2003 Kirkpatrick II D. Charles, Dahlquist R. Julie – <i>Technical Analysis</i> – Financial Time Press, New Jersey, 2007 Schwartz A. Robert, Franconi Reto – <i>Equity Market in Action</i> - John Wiley & Sons, New Jersey, 2004 Tanenbaum S. Andrew, Van Steen Maarten - <i>Distributed Systems Principles and Paradigms</i> – Prentice-Hall, New Jersey, 2002 Vințe Claudiu – <i>Sisteme distribuite de asistare a tranzacțiilor bursiere</i> – PhD Thesis, ASE Library, București, 2006 						
Coordinators	Position, title, first name, surname					Signature	
	Claudiu Vințe, PhD						
Legend: C – course; S – seminar; L/P – practical papers							

