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Mathematical Methods in Finance and Business Administration

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- Proceedings of the 2nd International Conference on Management, Marketing, Tourism, Retail, Finance and Computer Applications (MATREFC '14)

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Tenerife, Spain, January 10-12, 2014

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Plenary Lecture 1

Dynamical Models of Unemployment Control with Distributed Time Delay

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Abstract: In this paper, two nonlinear mathematical models of unemployment control are proposed and analyzed.
In the first model, unemployment signals to employers the possibility to hire at lower wages, thus stimulating further job creation in the private sector. Governments are expected to respond as well to the social and budgetary pressures of large numbers of individuals willing to work at the lower wage rate, but still unable to find employment or relying on benefits. Thus, four dynamic variables have been considered: number of unemployed persons, number of employed persons, number of available jobs and number of newly created vacancies.
In the second model, in additional, jobs competition between the unemployed and new migrants is taken into consideration. We consider the situation where governments observe the stock of migrants on their territory, along with unemployed numbers, but have no direct control on the number of migrants.
Both models are described by distributed delay differential systems. The local stability behavior of non-negative equilibrium points is studied, in both cases no distributed delay and distributed delay.
Numerical simulation of the model has been carried out to illustrate the analytical results.

Brief Biography of the Speaker: Mihaela Neamtu was born in Timisoara (Romania) on 1971. She graduated in 1995 the Faculty of Mathematics, West University of Timisoara. In 2001 she obtained the title of Ph.D in mathematics. She followed a didactic career at the Faculty of Economics and Business Administration, West University of Timisoara, Romania and she is currently a professor. She has been a visiting Professor for short periods of time at The Nottingham Trent University, Economics & Politics (Great Britain) and Faculty of Mathematics, Bonn (Germany). Professor Mihaela Neamtu has over 70 articles published in Journals and Proceedings of the International Conferences and 5 monographs; she has been a regular referee of papers for several International Journals and a reviewer of Mathematical Reviews (MathSciNet). She has been participating in 12 multiannual grants (1 of them is international), in 9 as a member and in 2 as a director. Her main academic interests are in dynamical systems and applications in biology and economy.

Plenary Lecture 2

A Product Innovation Methodology Based on QFD and TRIZ

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Abstract: Innovation is the act of introducing something new or doing something in a different way. We approach innovation from the point of view of an innovative product, biometric identification system for medical emergency cases, and from the point of view of the methodology introduced for this product development. This methodology is based on QFD, a complex comprehensive quality specific method that translates the "voice of the client" in product characteristics, and on TRIZ, which offers systematic innovation and problem solving toolkits.
In the 19th century began a gradual collaboration and cooperation of science and assorted crafts and industries, which led to the acceleration of various innovations development and their industry integration.
This partnership between science and industry allowed scientists to produce practical applicable technologies, which business could reasonably afford. Because of this collaboration, innovation grew quickly. So, the current trend is to make science and businesses stop being treated as separate entities. Our methodology fits in this trend by introducing an easy to use tool that allows the development of innovative products according to the client needs. This methodology combines QFD, a method that is usual for business, and TRIZ, a method that is usual for science, offering and integrated instrument that make the two entities work together.

Brief Biography of the Speaker: Andreea Ionica: Graduated the University of Petrosani as engineer (1992), as economist (2002) and PhD in Industrial Engineering (2004). She got a postgraduate degree in Enterprises' Economy and Administration from Institut National Polytechnique de Lorraine, France (1998). She also graduated the course of Human Resources Management (1999). She is currently Associated Professor in the Management Department at University of Petrosani where she teaches mainly in the areas of Management and Quality Management. Her research interests include: Quality Management Systems (QMS), TQM implementation, the study of customer - supplier relationship in the context of the QMS implementation. She activates in the field of quality management systems, being auditor and Quality Management Representative at the University of Petrosani. In the period 2010-2012 she coordinates a Grundtvig project with partners from Turkey, Romania, Nederland, Belgium and Germany. She participated as coordinator or member in about 10 national and international research projects and grants and published about 100 papers. She also presented plenary lectures in WSEAS conferences in Malta, September 2012; Athens, Greece, May 2013 and Valencia, Spain, August 2013.
Monica Leba: Received a BSc in System Control and Applied Informatics Engineering in 1998, a MSc in Information Systems and Technologies in 2007 and gained a PhD in System Control in 2002. She joined in 1999 the University of Petrosani. In 2008 became Associated Professor of System Control Engineering. She is member of IFAC (International Federation of Automatic Control), Technical Committee 3.1. Computers for Control. She is coordinator of the LLP-Erasmus program at the University of Petrosani from 2007. She was Invited Lecturer at the University of Clausthal – Germany, University of Nancy – France and University of Malaga – Spain. Her general research interests are in applied informatics, algorithms design, modelling and simulation, computer and system control engineering. She took part and coordinated about 20 national and international research projects and grants and published about 80 papers, part of them in WSEAS conferences. She also presented plenary lectures in WSEAS conferences in Corfu, Greece, October, 2008; Istanbul, Turkey, June, 2009; Malta, September 2012; Athens, Greece, May 2013 and Valencia, Spain, August 2013.