

# **E-education Environment for Scientific Collaboration and Graduate Studies:**

## ***Optimization Models of Theories of Games and Markets***

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# Introduction

In 1975 the well-known mathematician and educator Paul Halmos said:

"The best way to learn is to do;  
the worst way to teach is to talk.

The best way to teach is to make students ask, and do.  
Don't preach facts- stimulate to act"

P. HALMOS, *The problem of learning to teach*, *Amer. Math. Monthly* 82 1975, 750-758

**We shall discuss an attempt to follow this idea.**

The objective is to start collaboration with educators, researchers and students of different universities along similar lines.

# Web-Sites

The identical web-sites  
contain the complete two-semester course:

*<http://soften.ktu.lt/~mockus>*

*<http://soften.ktu.lt:8080>*

*<http://optimum2.mii.lt>*

*<http://optimum2.mii.lt:8080>*

*<http://pilis.if.ktu.lt/~jmockus>*

*<http://pilis.if.ktu.lt:8090>*

*<http://kopustas.elen.ktu.lt/~jmockus>*

*<http://kopustas.elen.ktu.lt:8080>*

*<http://eta.ktl.mii.lt/~mockus>*

*<http://mockus.org/optimum>*

Ports 8080 and 8090 open servlets.

The course is updated at the end of each semester  
responding to students preferences and contributions.

# Graduate studies

## Learning

Studies are in the form of video-conferences, by KTU Center for E-learning Technologies, Friday 8.00-9.45.

All the needed materials are in the web as 120 slides (basic formula), books (complete description), and Java applets and servlets for running and updating

## Evaluation

Is in the form of scientific seminar arranged as a special video-conference:

the teacher just responds to students questions and comments.

Important part of evaluation is the quality of home work. Attendance is regarded, too.

# Statistics

**Beginning:** 1998

**End:** open

**Number of contributing students;** about 500

**Number of selected models:** about 80

**Number of files:** about 80.000

**Volume;** about 2 GB

**References:** the content is published in books and papers by well-known international publishers.

# Applications

**Actual applications** These are:

1. Optimization of profiled school scheduling (applied as open software in the form of Java servlet)
2. The Java applet of optimal container packing (applied as commercial software).

**Pending applications** In addition, we discuss some optimization models intended for real applications

1. Application of statistical decision theory to optimize buy-a-flat time, employee selection, and inventory control.
2. The model of financial markets as a multi-person game based on the Nash equilibrium theory.

The model represents a new approach to the investigation of financial markets

**These and all the remaining models are open and available for any interested person with internet connection.**