"Petru Maior" University of Tîrgu-Mureş
Faculty of Economics, Law and Administrative Sciences
Department of Management- Economics
No. 8 / 16.01.2014

EXAM TOPICS

Position no. 4 – PROFESSOR, disciplines:

- Operations research
- Business development tools and optimization techniques for entrepreneurs

Operations research

- Linear programming: linear algebra and geometric properties.
- The graphical solutionf two-variable linear programming problems. The simplex algorithm.
- Duality in linear programming.
- Integer programming. The cutting plane algorithm of Gomory.

References:

1. C. Dinescu, V. Atanasiu; Matematici pentru economisti. Vol.I-II -III.
2. Carmen Bărbăcioru, *Cercetări Operaționale*, Editura Academica Brâncuşi, 2009 Ed.Didactică si Pedagogică Bucureşti - 1995.
3. P.C. Pop, Cercetări operaționale, Editura Risoprint, Cluj Napoca, 2005
4. Romică Trandafir, Modele şi algoritmi de optimizare, Editura AGIR,Bucureşti,2004
5. Szabo Zs. Cercetări operaționale, Editura Universității Petru Maior, Tg.Mureş-2005
6. Wolfgang W. Breckner; Cercetare operaționalâ. Cluj-Napoca 1981.
7. http://www.asecib.ase.ro/cursuri_online.htm
8. http://civile.utcb.ro/mao.pdf

Business development tools and optimization techniques for entrepreneurs

- Using the Excel Solver to solve linear programming problems. Special cases: production process models, short term financial planning, blending problems.
- Using the Excel Solver for two-person zero-sum games. Applications.
- Transportation problems. Using the Excel Solver to solve the transportation problem. Special cases. Applications.
- Assignment problems. Using the Excel Solver to solve the assignment problem. Special cases. Applications.

References:

1. Paul Cornell, Beginning Excel what-if data analysis tools – getting started with goal seek, data tables, scenarios, and Solver: http://uap.unnes.ac.id/ebook/newest%20ebook/Apress.Beginning.Excel.What.If.Data.Analysis.Tools.Dec.2005.eBook-BBL/Apress.Beginning.Excel.What.If.Data.Analysis.Tools.Dec.2005.pdf
2. Probleme aplicative - http://www.maximalsoftware.com/modellib/modWinston4.html- Wayne L. Winston, Operations Research: Applications and Algorithms, 4th ed.
3. Romica Trandafir, Modele si algoritmi de optimizare, 2004, http://civile.utcb.ro/mao.pdf
4. Szabo Zs., Cercetări operaționale, Optimizări liniare, Editura Universității Petru Maior, 2005.
5. Wayne L. Winston, Operations Research: Applications and Algorithms, *4th ed.*
6. http://www.nuibooks.com/operations-research-applications-and-algorithms-PDF-1821109/

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