Table 5.2. Course specification
Business & Decision Modelling

Study program : Advanced Data Analytics in Business

Course title: Business & Decision Modelling

Teachers: Sedlak Otilija, Marcikić Horvat Aleksandra, Papatanasiu Jason

Status of the course: elective

Number of ECTS: 7

Condition: No

Goal of the course

The aim of this course is to provide students with the necessary knowledge regarding basic concepts and methods of decision-making in different areas of the economy by applying quantitative methods. Knowledge acquired in this area should point the need for certain methods in the field of economics, in order to make effective decisions.

Learning outcome

Students' abilities to successfully use the knowledge for recognition of different economic connections in order to provide support in the process of making economic decisions: optimizing business decisions; planning and optimization of inventories and costs; modeling of problems with non-fulfillment of traditional assumptions, recognition and formulation of the decision-making process.

Content of the course

Theoretical part

1. *Quantitative research in economics and economic models;*
2. *Significance of quantitative methods in analysis and planning;*
3. *Operational Research and Linear Programming;*
4. *Formulation and application of LP models;*
5. *The solution of the primary and dual model;*
6. *Integer programming;*
7. *Nonlinear programming;*
8. *Specific linear models;*
9. *Transportation problems;*
10. *Problem of async;*
11. *Network models;*
12. *PERT / CPM;*
13. *Maximum flow problems;*
14. *Game Theory;*
15. *Simulation.*

Practical part

Computer solution of OR problems with the structured packages: LINDO / LINGO, EXCEL. Practical part of teaching will be in computer labs for solving and analyzing the solutions. Applications of mathematical methods and models in decision making in business.

Literature

1. Winston, W.L., Practical Management Science, South-Western, Cengage learning, 2012.
2. Winston, W.L., Operations Research, Applications and Algorithms, Duxbury Press, Belmont, 1994.
3. Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., Cochran, J. J., Fray, M. J., Ohlmann, J. W., Quantitative Methods for Business, South-Western, Cengage Learning, 2013.
4. Wisniewski, M., Quantitative Methods for Decision Makers, Pearson Education Limited, 2016.
5. Render, B, Quantitative Analysis for Management, Pearson Education, 2008.

Number of hours of active teaching	**Theoretical teaching: 2**	**Practical teaching: 2**

Teaching methods

Teaching will be done in classrooms, computer labs using appropriate teaching resources (multimedia presentations, software packages, etc.). Teaching takes place through lectures, exercises and independent work. Proof of knowledge is done through written and oral exams.

Assessment (maximum number of points 100)

Pre-exam obligations	Points	**Final exam**	Points
Activities during semester	5	Written exam	15
Practical part	5	Oral exam	15
Colloquium	2 times 20 points	.....	
Seminar paper	20		