Operational Research in Logistics

1. Subject name	Operational Research in Logistics				
2. Subject name in Hungarian	Operációkutatás a logisztikában				
3. Code	BMEKOALD001	4. Evaluation type	exam grade	5. Credits	4
6. Weekly contact hours	4 (0) Lecture	0 (0) Practice	0 (0) Lab		
7. Curriculum	PhD Programme	8. Role	Basic course		
9. Working hours for fulfilling the requirements of the subject					120
Contact hours	56	Preparation for seminars	7	Homework	37
Reading written materials	20	Midterm preparation	0	Exam preparation	0
10. Department	Department of Material Handling and Logistics Systems				
11. Responsible lecturer	Dr. Bóna Krisztián				
12. Lecturers	Dr. Bóna Krisztián				
13. Prerequisites					

14. Description of lectures

The specialities of the logistics modeling. The typical properties of the logistics optimization problems. Deterministic and stochastic dynamic programing in logistics. Multi-criteria optimization problems and models, analitical hierarchy process and pareto optimizing in logistics systems. Linear and non-linear programing and conditional optimum searching in logistics. Stochastic modeling, optimum seeking in stochastic environment. Mathematical algorithms of the discrate event based simulation models, and its applications in logistics system modelling. Special issues in operational research. Soft computing techniques based optimum seeking in logistics modeling. Documentation of logistics models and algorithms (case study).

15. Description of practices

16. Description of labortory practices

17. Learning outcomes

A. Knowledge
- Knowledge of the logistics oriented operational research problems.
- Knowledge of the mathematical modelling tools.
- Knowledge of the related journals and literatures to analyse the state of the art.

B. Skills
- Able to study the operational researching problems, taking into account the scientific requirements.
- Able to create and design mathematical models related to the real problems and effects.

C. Attitudes
- Strive to maximize their abilities to make their studies at the highest possible level, with a profound and independent knowledge, accurate and error-free, in compliance with the rules of the applicable tools, in collaboration with the instructors.

D. Autonomy and Responsibility
- Take responsibility for the quality of the work and the ethical standards that set an example for the classmates, using the knowledge acquired during the course

18. Requirements, way to determine a grade (obtain a signature)

The grade of the Phd student is based on the research activity, and the quality of the developed model, and the scientific white paper.

19. Opportunity for repeat/retake and delayed completion

Announced at the beginning of the semester

20. Learning materials

Wayne L. Winston: Operations Research: Applications and Algorithms, 4th Edition, Cengage Learning, 2003.
Frederick S. Hillier, Gerald J. Lieberman: Introduction To Operations Research 10th Edition, Mc Graw Hill India; 10th

edition, 2017.
Operational research related e-books and websites

Effective date	27 November 2019	**This Subject Datasheet is valid for**	Inactive courses