1. Subject name	**Decision making methods**				
2. Subject name in Hungarian	Döntéselőkészítő matematikai módszerek				
3. Code	**BMEKOKKM221**	4. Evaluation type	**mid-term grade**	5. Credits	**5**
6. Weekly contact hours	**3 (16) Lecture**	**1 (5) Practice**	**0 (0) Lab**		
7. Curriculum	**Transportation Engineering MSc (K)**	8. Role	**Mandatory (mc) at Transportation Engineering MSc (K)**		
9. Working hours for fulfilling the requirements of the subject					**150**
Contact hours	56	Preparation for seminars	10	Homework	16
Reading written materials	56	Midterm preparation	12	Exam preparation	0
10. Department	**Department of Transport Technology and Economics**				
11. Responsible lecturer	Dr. Békefi Zoltán				
12. Lecturers	Dr. Békefi Zoltán				
13. Prerequisites					

14. Description of lectures

Principles of mathematical modeling. Solving linear programming problems using the simplex methods. Application of primal-dual methods in the decision process. Programming methods applied frequently in the transportation: transportation, assignment models, integer programming methods. Network problems and methods: maximum flow, minimum-cost flow problem, shortest path problem, critical path method. Dynamic programming. Principles of nonlinear programming, game theory, stochastic processes. Queuing models and their application in the transportation. Stocking problems. Markov chains and their application in transportation. Forecasting. Simulation. MultiCriteria Analysis.

15. Description of practices

Solving linear programming and other problems using computers, developing and solving simplified real life case studies.

16. Description of labortory practices

17. Learning outcomes

A. Knowledge

The student gets acquainted with the principal mathematical modeling methods, and will be able to identify and solve the decision problems, applying integrated technical and economical knowledge.

B. Skills

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C. Attitudes

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D. Autonomy and Responsibility

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

The semester mark is resulted by the 2 midterm tests passed by the students during the semester.

19. Opportunity for repeat/retake and delayed completion

The midterms can be retaken according to the Code of Studies.

20. Learning materials

Hillier, F.S. – G.J. Lieberman: Introduction to Operation Theory

Effective date	10 October 2019	**This Subject Datasheet is valid for**	2024/2025 semester II