1. Subject name	**Control of transport logistics**				
2. Subject name in Hungarian	Szállításirányítás				
3. Code	**BMEKOALM341**	**4. Evaluation type**	exam grade	**5. Credits**	**3**

6. Weekly contact hours	**2 (9) Lecture**	**0 (0) Practice**	**1 (5) Lab**

7. Curriculum	**Logistics Engineering MSc (L)**	8. Role	Specialization (sp) at Logistics Engineering MSc (L)

9. Working hours for fulfilling the requirements of the subject					**90**
Contact hours	42	**Preparation for seminars**	0	**Homework**	29
Reading written materials	0	**Midterm preparation**	0	**Exam preparation**	19

10. Department	**Department of Material Handling and Logistics Systems**
11. Responsible lecturer	Dr. Kovács Gábor
12. Lecturers	Dr. Kovács Gábor, Bakos András
13. Prerequisites	

14. Description of lectures

The components of the transport logistics control systems. Summary of GIS basics. Operational control problems and tasks of the transport logistics systems. Mathematical modelling techniques, decision supporting of transport logistics control systems. The mathematical model of transportation networks. The shortest path search methods. The exact and the provisional planning. Modelling of routes: direct routes, collecting and distributing routes. The traveling salesman problem (TSP) and the vehicle routing problem (VRP). Soft computing methods. The IT architecture of the freight control systems. The mobile devices. The connection between the freight exchanges and the transport logistics control systems.

15. Description of practices

16. Description of labortory practices

Practicing the algorithmizing of mathematical modeling methods used in operational route planning through small tasks. Practicing route planning software. Preparing the homework.

17. Learning outcomes

A. Knowledge
  - Knowledge of GIS basics.
  - Knowledge of relevant graph theory basics.
  - Knowledge of TSP and VRP problems and methods of solving them.
  - Knowledge of transport management information systems.

B. Skills
  - Able to identify transport modeling problems and model them.
  - Able to solve the emerging transport management tasks by selecting and applying appropriate solution methods and tools.

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)

1 homework (weights: 25% for the part-performance check, 25% for the final submission) of each at least 50% performance is the condition of signature, exam (weight: 50%)

19. Opportunity for repeat/retake and delayed completion

The part-performance check and the final submission can both be resubmitted once.

20. Learning materials

Students can download the subject notes in pdf format via Moodle.

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