



1. Subject name	Operation of railway vehicles				
2. Subject name in Hungarian	Vasúti járművek üzeme				
3. Code	BMEKOVJM409	4. Evaluation type	exam grade	5. Credits	3
6. Weekly contact hours	2 (7) Lecture	0 (0) Practice	0 (0) Lab		
7. Curriculum	Vehicle Engineering MSc (J)	8. Role	Specialization (sp) at Vehicle Engineering MSc (J)		
9. Working hours for fulfilling the requirements of the subject					90
Contact hours	28	Preparation for seminars	4	Homework	0
Reading written materials	36	Midterm preparation	12	Exam preparation	10
10. Department	Department of Aeronautics and Naval Architectures				
11. Responsible lecturer	Dr. Csiba József				
12. Lecturers	Németh István, Kisteleki Mihály				
13. Prerequisites					
14. Description of lectures					
<p>Service processes for railway vehicles. Vehicle input, the actual service timing and vehicle output as components of a random service process. Inventory problems in the operation of railway vehicles, the theory of minimum cost-storing and purchase. Statistical theory of the operating system of railway vehicles based on the technical state. Analysis of the operation reliability of railway vehicles, reliability-based operation/maintenance (RCM system). Railway vehicle diagnostics, vehicle diagnostics and stationary equipments, stations. Systems for identifying of vehicles and their operational modes. Operational properties of braked trains, braking-difficulties, dynamical- and thermal processes.</p>					
15. Description of practices					
16. Description of laboratory practices					
17. Learning outcomes					

A. Knowledge

- Understands and applies the mathematical and scientific principles and procedures of the railway vehicles operation.
- Understands and can apply in a wide circle the theories and terminologies elaborated for professional area of the railway vehicles operation.
- Knows and understands the basic facts, limits and development possibilities of the railway vehicles operation.
- Knows and understands the traffic, logistic, environment-, work- and fire protection viewpoints of the railway vehicles operation.
- Knows and understands the information and communication techniques which are connected with the railway vehicles operation.

B. Skills

- Able to apply in innovative way the required mathematical and scientific principles and procedures for solving the problems connected with the vehicles operation.
- Able to apply, to analyze and to evaluate the methods applied in the field of the railway vehicles operation.
- Shows ability to apply integrated knowledges in the field of the railway vehicles operation.

C. Attitudes

- Open and receptive to know and to pass on the developments and innovations which are taken place on the field of the railway vehicles operation. The sense of vocation is depth.
- Accepts the professional and ethical values-system connected with the professional area of the railway.
- Pursuing to use complex and on system-oriented mentality based approach to the processes.

D. Autonomy and Responsibility

- Pro-activity in professional work, the self-standing selection and application of the solution methods.

- Making decision circumspectly and responsibility.
- Takes into account in the decisions the regulations of the environment, the law and the engineering ethics.

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

The criterion of signature is the active participation at the class (attitude). During the semester there is necessary successfully to write two midterm tests (knowledge, ability, autonomy). In the fields of attitudes and autonomy the results achieved in the semesters are included in the final classification by weight 50%. At the end of semester there is an examination (knowledge, ability, attitude).

19. Opportunity for repeat/retake and delayed completion

Possibility to refit the midterm tests, to repeat the examination, properly to the Study and Exam Regulations.

20. Learning materials

Zobory: Megbízhatóságelmélet. Department's publication.. Bp.199- 33 o.

Zobory: Vasúti járművek üzemeltetéselmélete. Department's publication.. Bp.199- 48 o.

Kaufmann: Az optimális programozás. MK 198- 415 o.

Effective date	10 October 2019	This Subject Datasheet is valid for	Inactive courses
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