



1. Subject name	Vehicle operation, reliability and diagnostics				
2. Subject name in Hungarian	Járműüzem, megbízhatóság és diagnosztika				
3. Code	BMEKOVRM602	4. Evaluation type	mid-term grade	5. Credits	2
6. Weekly contact hours	2 (7) Lecture	0 (0) Practice	0 (0) Lab		
7. Curriculum	Vehicle Engineering MSc (J)	8. Role	Mandatory (mc) at Vehicle Engineering MSc (J)		
9. Working hours for fulfilling the requirements of the subject					60
Contact hours	28	Preparation for seminars	4	Homework	0
Reading written materials	16	Midterm preparation	12	Exam preparation	0
10. Department	Department of Aeronautics and Naval Architectures				
11. Responsible lecturer	Dr. Csiba József				
12. Lecturers	Németh István				
13. Prerequisites					
14. Description of lectures					
Chronology, maintenance-, energetic-, mass- and info technical environment of the vehicle operation. Basics of probability analysis of vehicle reliability. Practical methods to analysing the vehicle reliability: block-diagram and fault-tree analysis. Solving of the design and operation problems using the methods of the reliability-theory. Data collection and information systems which are the basis of the vehicle reliability analysis. Specialities of the up-to-date RCM systems. Analysis of the vehicle servicing systems by semi-Markovian approach, negotiation of the questions of the mass service and storage sytems. Basis of the vehicle system diagnostic: the observation, the measurement, the automatic diagnostic evaluation, the statement of the operability. Using the databases based on system technical simulation to authorise the operation of the vehicles which are have suitable for transportation-safety criterions technical conditions. Exploring of the weaknesses by using diagnostic test.					
15. Description of practices					
16. Description of labortory practices					
17. Learning outcomes					

A. Knowledge

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

B. Skills

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

C. Attitudes

- Open and receptive to know and to pass on the developments and innovations which are taken place on the field of the speciality. The sense of vocation is depth.
- Accepts the professional and ethical values-system connected with the technical professional area.
- 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 safety, the economy and the engineering ethics.

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

During the semester necessary the active participation at the class (attitude), and during the semester there is two midterm tests for evaluating the knowledge, the ability, the autonomy and the attitude. The attitude and the autonomy mean 15-15 % and the knowledge and the ability mean 35-35 % in the final classification.

19. Opportunity for repeat/retake and delayed completion

Possibility to refit the midterm tests.

20. Learning materials

Benedek T.- Győri J.- Zobory I.: Járműrendszer diagnosztika. Publication of the BME VRHT., Budapest 200-
Gál Z.- Kovács Z.: Megbízhatóság, karbantartás. Publisher of University of Veszprém. Veszprém 2000.
Zobory I.: Járműüzem, megbízhatóság és diagnosztika . Department's publication., 20-

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