Reliability, Safety and Security in the Vehicle Industry

1. Subject name	Reliability, Safety and Security in the Vehicle Industry				
2. Subject name in Hungarian	Biztonság és megbízhatóság a járműiparban				
3. Code	**BMEKOKAM660**	4. Evaluation type	**mid-term 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	8	Homework	0
Reading written materials	36	Midterm preparation	8	Exam preparation	10
10. Department	**Department of Control for Transportation and Vehicle Systems**				
11. Responsible lecturer	Dr. Sághi Balázs				
12. Lecturers	Dr. Sághi Balázs				
13. Prerequisites					

14. Description of lectures

Definition of the safety and the reliability, intoduction. Basic specification and analysis techniques. Introduction to vehicle industry standards with particular regard to the standard ISO 26262 . Safety levels, classification of functions.
Safety issues of the information systems of vehicules (cyber security). Vehicle vulnerabilities through classic automotive networks. Safety risks and defense in the vehicles connected to the internet or using V2X communication.

15. Description of practices

16. Description of labortory practices

17. Learning outcomes

A. Knowledge
- knows the guidelines of the ISO 26262 standard for the automotive industry
- is familiar with the concepts and mathematical apparatus of basic safety and risk analysis
- is familiar with the development methods of safety-critical systems and safety architectures
- is familiar with the numerical descriptive tools of reliability and the related calculation methods

B. Skills
- capable of performing safety calculations based on a specification
- can perform risk analysis calculations

C. Attitudes
- is interested in the safety and reliability issues of autonomous vehicles

D. Autonomy and Responsibility
- does its work in autonomous and responsible way

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

For midterm grade: successful completion of the midterm exam. The final grade equals to the result of the midterm exam.

19. Opportunity for repeat/retake and delayed completion

The midterm exam can be retried once.

20. Learning materials

Lecture Notes

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