BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS
Faculty of Transportation Engineering and Vehicle Engineering

Subject description

1. Subject name	**Synergy of Engineering and Business: The Disruptive Transformation of the Truck Industry as a case study 2.**				
2. Subject name in Hungarian	Mérnöki és üzleti szinergia: A haszonjárműipar robbanásszerű átalakulása mint esettanulmány 2.			**3. Role**	oc
4. Code	BMEKOKKBsM8002-00	**5. Evaluation type**	m	**6. Credits**	3
7. Weekly contact hours	1 lecture	1 practice	0 lab	**8. Curriculum**	any

9. Working hours for fulfilling the requirements of the subject					**90 hours**
Contact hours	28 hours	**Preparation for seminars**	20 hours	**Homework**	27 hours
Reading written materials	15 hours	**Midterm preparation**	0 hours	**Exam preparation**	0 hours

10. Department	Department of Transport Technology and Economics
11. Responsible lecturer	Dr. Mészáros, Ferenc
12. Lecturers	Dr. Steinberger, Jürgen

13. Prerequisites	Recommended prerequisite: any basic economic and management subject AND Semester 1 Lecture of "*Synergy of Engineering and Business: The Disruptive Transformation of the Truck Industry as a case study 1.*"

14. Description of lectures

The truck industry has been the steady, slow changing backbone of the logistic industry for decades. 70% of the goods shipped on land are transported by trucks. However, over the last 5 years the speed of change with respect to legal requirements, market consolidation, business models and technology changes has factually exploded. The subject reviews – based on the legislative, business and market factors – the technical changes and challenges.

Main chapters of the lecture are:

- Worldwide standardization of active safety systems (braking-, steering- and ADAS systems).
- Business rational of ADAS systems, technical approach and industrial approach and strategic considerations consequently.
- Connectivity: areas and market model, interaction with HAD, ADAS and Chassis Control Systems.
- E-mobility: Market drivers and regional penetration scenarios, technology changes and consequences on the truck.
- Functional Safety: redundancy and diagnostic requirements for different ASIL levels, technical concepts / implementation examples: sensor / actuator checking; plausibility checks; cost-optimized redundancy solutions
- Cybersecurity: market needs and consequences, technical concepts.

The lectures of the semester are organized into 4 blocks, each of which is 3 x 1:30 long, with 2 x 10-minute breaks between them.

15. Description of practices

2x case studies to be elaborated as a teamwork.

16. Description of laboratory practices

No lab practices.

17. Learning outcomes

This lecture series will give the students a broad overview of the disruptive changes in the complete truck industry.

Knowledge: It will focus on and explain the technology changes and challenges in detail, while giving the students the necessary background information to understand the legal, business and market drivers.

Skills: To complete the picture, the students will also get acquainted with new organizational and technical management approaches to face the upcoming challenges.

Attitude: In addition to the technical competence, the student will be able to understand and analyze problems based on business, market, and legal aspects, as they actually appear in real life.

Autonomy and responsibility: They can make responsible decisions independently and prepare decision-making materials considering technical, business, market and legal aspects.

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

Midterm grade, primarily based on the activity of the student and the case studies. Grading: Students must form teams of 5. Each team receives a maximum of 5 points per person to distribute among its members: 1-5 per person. The group members decide on the distribution of points among themselves.

19. Opportunity for repeat/retake and delayed completion

The case study work can be retaken once.

20. Learning materials

Lecture notes.