1. Subject name	**Drive techniques PhD**				
2. Subject name in Hungarian	Hajtástechnika PhD				
3. Code	**BMEKOGED006**	4. Evaluation type	exam grade	5. Credits	**3**
6. Weekly contact hours	**3 (0) Lecture**	**0 (0) Practice**		**0 (0) Lab**	
7. Curriculum	**PhD Programme**	8. Role	**Specific course**		

9. Working hours for fulfilling the requirements of the subject					**90**
Contact hours	42	Preparation for seminars	7	Homework	20
Reading written materials	7	Midterm preparation	0	Exam preparation	14

10. Department	**Department of Railway Vehicles and Vehicle System Analysis**
11. Responsible lecturer	Dr. Lovas László
12. Lecturers	Dr. Lovas László
13. Prerequisites	

14. Description of lectures

Basics of drive technics. Driving and driven torque curves. Drives with internal combustion engines. Type and task of clutches. Structure of mechanical gearboxes. Driving and driven inertias. Shifting mechanism. Process of gear changing. Types and shiftability of synchronizers. Shiftability of spline clutches. Gearbox design regarding manufacturing and shiftability. Bearings and lubrication in gearboxes. Robotized and double clutch gearboxes, design and problems. Hybrid vehicle layouts.

15. Description of practices

16. Description of labortory practices

17. Learning outcomes

A. Knowledge
- Problems and solutions in driveline technics.

B. Skills
- Design of a driveline with internal combustion engine.

C. Attitudes
- Being open to understand and learn novelties on that given domain.

D. Autonomy and Responsibility
- Evaluation and choice of elements for an optimal solution.

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

Semester note upon succesful realisation of the homework and an oral exam.

19. Opportunity for repeat/retake and delayed completion

Secondary deadline for the homework precised in the lessons requirements.

20. Learning materials

Effective date	27 November 2019	This Subject Datasheet is valid for	Inactive courses