



1. Subject name	Nonlinear control				
2. Subject name in Hungarian	Nemlineáris irányítások				
3. Code	BMEKOKAD018	4. Evaluation type	exam grade	5. Credits	4
6. Weekly contact hours	3 (0) Lecture	0 (0) Practice	0 (0) Lab		
7. Curriculum	PhD Programme	8. Role	Basic course		
9. Working hours for fulfilling the requirements of the subject					42
Contact hours	42	Preparation for seminars	0	Homework	0
Reading written materials	0	Midterm preparation	0	Exam preparation	0
10. Department	Department of Control for Transportation and Vehicle Systems				
11. Responsible lecturer	Dr. Szabó Zoltán				
12. Lecturers	Dr. Szabó Zoltán				
13. Prerequisites					
14. Description of lectures					
This course provides an initialization in nonlinear control theory. We introduce the basic concepts related to the geometric approach to nonlinear geometric system theory based on invariant distributions and provide solutions for the most fundamental design problems. As an illustration switched systems are presented. Linearization techniques are presented. It follows Lyapunov based stability theory, passivity based approaches and backstepping design. We provide some methods for nonlinear observer design. The course ends with gain scheduling and LPV techniques.					
15. Description of practices					
16. Description of laboratory practices					
17. Learning outcomes					
A. Knowledge B. Skills C. Attitudes D. Autonomy and Responsibility					
18. Requirements, way to determine a grade (obtain a signature)					
The credits are obtained by completing the design task and by passing the oral exam. Prior to be accepted for the exam, students should fulfil the design task and should summarize their results in a report.					
19. Opportunity for repeat/retake and delayed completion					
20. Learning materials					
Effective date	27 November 2019	This Subject Datasheet is valid for		Inactive courses	