

**Faculty of Transportation Engineering and Vehicle Enginee** 

1. Subject name	Discrete Control Design				
2. Subject name in Hungarian	Diszkrét irányítások tervezése				
3. Code	BMEKOKAM658	4. Evaluation type	exam grade	5. Credits	4
6. Weekly contact hours	2 (10) Lecture 0 (0) Practice 2 (11) 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 120					
Contact hours	56	Preparation for seminars	18	Homework	20
Reading written materials	8	Midterm preparation	8	Exam preparation	10
10. Department	Department of Control for Transportation and Vehicle Systems				
11. Responsible lecturer	Dr. Gáspár Péter				
12. Lecturers	Dr. Gáspár Péter, Dr. Bécsi Tamás				
13. Prerequisites					
14. Description of lectures					
System Theory, The mathematical description observers. In the second half of Methods, Fuzzy The	eory of Linear Time-V iption of discrete time f the subject, high-lev eory, Genetic Algorith	ariable Dynamic Disc systems. Design of el control planning ar ms, Optimization.	crete Time System P, PI and PID cont nd optimization tec	s. Z-transformation. Dyr rollers. State feedback. chniques are described.	namics and Designing Soft Computing
15. Description of practices					
16. Description of labortory practices					
Implementation of the methods learned during the lectures, by using MATLAB, Simulink and embedded platforms					
17. Learning outcomes					
A. Knowledge					

- is familiar with the theory of describing discrete time linear systems
- · knows the basic discrete regulatory design and monitoring design principles
- · knows the basics of Fuzzy systems
- knows the basics of genetic algorithms
- B. Skills
  - is able to design and analyze discrete linear controllers
  - is able to apply basic soft-computing techniques
- C. Attitudes
  - is interested in modern IT solutions
  - · capable of algorithmic thinking that can be applied in other areas
- D. Autonomy and Responsibility
  - in addition to known environments, it is able to acquire other unknown program languages and development tools in autodidact

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

Two midsemester exams, which are the prerequisite of the final exam. The final grade depends only on the final exam.

19. Opportunity for repeat/retake and delayed completion

Both midterm exams can be retried once.

20. Learning materials

Lecture Notes

Effective date 10 October 2019