



1. Subject name		Programming in C and Matlab			
2. Subject name in Hungarian		Programozás C- és Matlab nyelven			
3. Code	BMEKOKAM603	4. Evaluation type	mid-term grade	5. Credits	4
6. Weekly contact hours	2 (10) Lecture	0 (0) Practice	1 (11) Lab		
7. Curriculum	Autonomous Vehicle Control Engineering MSc (A) Vehicle Engineering MSc (J)	8. Role	Mandatory (mc) at Autonomous Vehicle Control Engineering MSc (A) Mandatory (mc) at Vehicle Engineering MSc (J)		
9. Working hours for fulfilling the requirements of the subject					120
Contact hours	42	Preparation for seminars	0	Homework	0
Reading written materials	24	Midterm preparation	54	Exam preparation	0
10. Department	Department of Control for Transportation and Vehicle Systems				
11. Responsible lecturer	Dr. Bécsi Tamás				
12. Lecturers	Dr. Bécsi Tamás, Dr. Aradi Szilárd, Törő Olivér				
13. Prerequisites					
14. Description of lectures					
The subject aims the learning of the C and Matlab programming languages and environments. These tools aim the students in the implementation tasks required by other courses. The goal on one hand is the introduction of the syntax of the two languages: Types, variables, data structures. Flow control, if-then, loops, functions, complex types and data structures. On the other hand, through the learning of syntax, the design and application of basic algorithm design paradigms is also studied.					
15. Description of practices					
16. Description of labortory practices					
In the laboratory practice, the goal is to learn the independent use of the syntactic and algorithmic design skills that are known at the lecture. In doing so, students learn the programming of languages through prepared examples in their development environments.					
17. Learning outcomes					
A. Knowledge <ul style="list-style-type: none"><li>• knows the basic syntax and structure of the two programming environments</li><li>• knows how the types, operators, and basic instructions work</li><li>• is familiar with the process control principles and syntax of structured programs, branches, sequences, cycles</li><li>• know the complex data structures, their use</li><li>• knows the basic algorithm design paradigms</li></ul>					
B. Skills <ul style="list-style-type: none"><li>• can write simple standalone programs in the two program languages concerned;</li><li>• can implement informally or formally specified algorithms</li><li>• can program source code interpretation, error correction</li><li>• is able to test and optimize ready-made programs and modules</li></ul>					
C. Attitudes <ul style="list-style-type: none"><li>• is interested in modern IT solutions</li><li>• capable of algorithmic thinking that can be applied in other areas</li></ul>					
D. Autonomy and Responsibility <ul style="list-style-type: none"><li>• in addition to known environments, it is able to acquire other unknown program languages and development tools in autodidact</li></ul>					

- capable of designing and implementing software modules alone, responsibly
- is able to consult in a team in algorithmic and programming tasks, to make independent decision

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

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Two midterm exams. The final grade is the rounded average of the exams.

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**19. Opportunity for repeat/retake and delayed completion**

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One midterm exam can be retried in the delayed completion period.

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**20. Learning materials**

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Lecture Notes, Dennis Ritchie: The C programming language, Matlab help

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<b>Effective date</b>	10 October 2019	<b>This Subject Datasheet is valid for</b>	2024/2025 semester II
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