

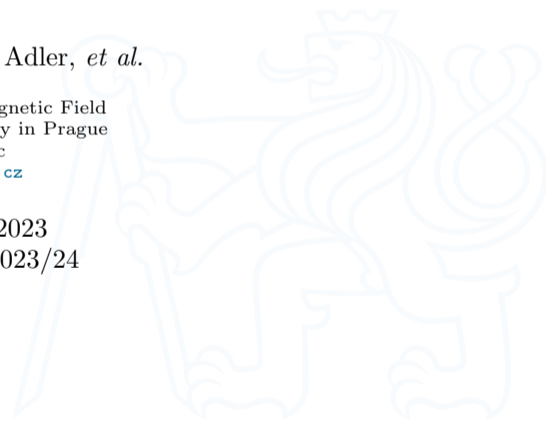
Course Information

B0B17MTB, BE0B17MTB – MATLAB

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September 25, 2023
Winter semester 2023/24





- ▶ 14 weeks (14th week is a “reserve”)
 - ▶ 11 blocks with new theory, 1 block of bonuses, 1 block of projects.
- ▶ **Conditions of credit award:**
 - ▶ To hand in a project (last week, **50 points**, min. 25 points).
 - ▶ Competition assignment (see next slide).
 - ▶ To write a test (last week of the semester, **20 points**).
 - ▶ To gather points from semester (**45 points**, min. 15 points):
 - ▶ short test during semester (15 points),
 - ▶ homeworks (3 × 10 points).
 - ▶ Max. 2 missed classes (more absences only after prior arrangement).
 - ▶ There are two courses taught this semester, any lecture can be substituted.
- ▶ Could happen that not all of the stuff of the course will be presented, because of time constraint – understanding the basics is a priority.
 - ▶ Bonus stuff (slides) available for advanced students.
- ▶ <https://cw.fel.cvut.cz/wiki/courses/b0b17mtb/start>

Grade	Points
A	90 – 115
B	80 – 89
C	70 – 79
D	60 – 69
E	50 – 59
F	0 – 49



Miloslav Čapek
Course guarantor



Viktor Adler
Course teacher



Jakub Liška
Course assistant



Jonáš Tuček
Course assistant



Vojtěch Neuman
Course assistant

To contact us, always use matlab@fel.cvut.cz!

Categories of Slides



- ▶ Each slide is categorized into one of following categories (see strip at the edge of slide):

Introduction

Operators

Matrix operations

Visualization

Data Types

Code Execution

Program Flows

GUI

Scripts and Functions

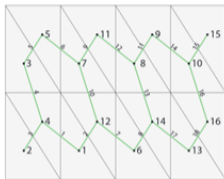
Symbolic Math

Introduction

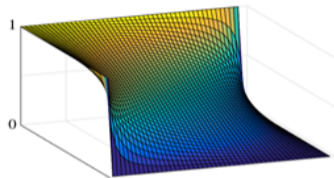
Competition Assignment



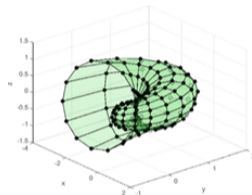
- ▶ Selected assignments from previous semesters:



Graph analysis



Jacobi method



Effective plotting

- ▶ see <https://cw.fel.cvut.cz/wiki/courses/b0b17mtb/start/projects/competition>.
- ▶ Project can be selected by any number of students.
- ▶ Conditions:
 - ▶ Project is completed according the assignment → credit award.
 - ▶ Project is the best one → winning the competition.
 - ▶ Prizes for the first three winners.



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- 1 Introduction, information on the course, MATLAB environment, basic math operators
 - 2 Vectors and matrices
 - 3 Vectorization, indexation, relational and logical operators, **homework (10 points)**
 - 4 Loops and program branching
 - 5 Functions **homework (10 points)**
 - 6 Functions, debugging, **short test (15 points)**
 - 7 Cells, strings, structures
-
- 8 Visualization, **project choice**
 - 9 Static GUI
 - 10 Dynamic GUI, **homework (10 points)**
 - 11 Timer, sorting operations, profiler
-
- 12 Set operators, error treatment, Object-oriented programming
 - 13 Bonuses: Symbolic math, data processing (MATLAB \rightarrow L^AT_EX)
 - 14 **Final test (20 points), presentation of projects (50 points)**
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Schedule



Week	Date (CZ)	Date (EN)	Teacher(s)	Lecture
1	25. 9.	MC/VN		1 (intro)
2	2. 10.	MC/JT		2 (vectors and matrices)
3	9. 10.	MC/JL		3 (indexing)
4	16. 10.	JL/VA		4 (loops, branching)
5	23. 10.	JT/JL		5 (functions1)
6	30. 10.	JL/JT		6 (functions2)
7	6. 11.	JT/JL		7 (strings)
8	13. 11.	VA/VN		8 (visualization)
9	27. 11.	VA/		9 (static GUI)
10	4. 11.	VA/		10 (dynamic GUI)
11	11. 12.	VN/JT		11 (timer, sorting operations)
12	18. 12.	VN/All		12 (set operators, OOP)
13	8. 1.	All		13 (test, projects)



- ▶ The aim of the course is to teach you something – if the presentation is too fast, be heard.
- ▶ If you have an idea / proposal how to solve a problem in a more efficient way, put it forward.
- ▶ Can happen that the lecturer is not able to answer your question immediately. In that case the answer will be provided during the next lecture.



- ▶ MATLAB documentation.

▶ Online

- ▶ Attaway, S.: MATLAB – A Practical Introduction to Programming and Problem Solving, 3rd ed.
 - ▶ Available at Department's library.
- ▶ Hahn, B. H., Valentine, D. T.: Essential Matlab, 5th Ed.
 - ▶ Available at Department's library.
- ▶ Other literature and sources will be mentioned during the semester...

Questions?

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This document has been created as a part of B(E)0B17MTB course.
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