Course Information

B0B17MTB, BE0B17MTB – MATLAB

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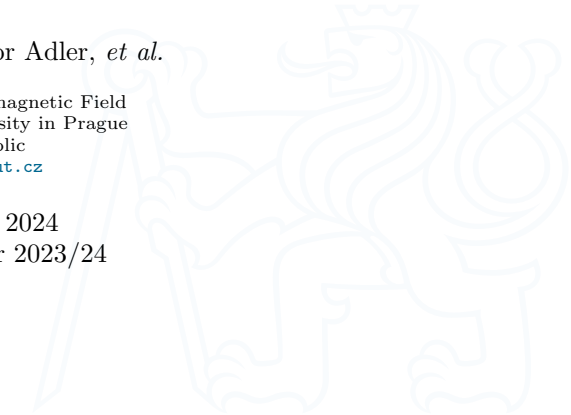
Summer semester 2023/24



- 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

Teachers & Contact

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!

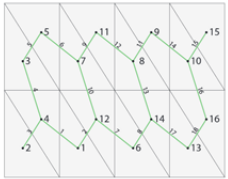
Categories of Slides

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

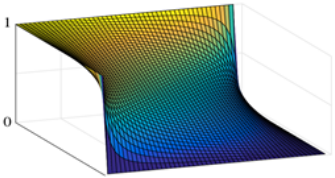
Introduction	Operators
Matrix operations	Visualization
Data Types	Code Execution
Program Flows	GUI
Scripts and Functions	Symbolic Math

Competition Assignment

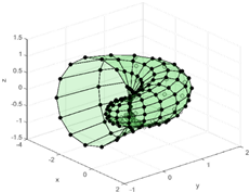
- Selected assignments from previous semesters:



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.

Course Syllabus

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→LaTeX)
14	Final test (20 points), presentation of projects (50 points)

Schedule

Week	Date (CZ)	Date (EN)	Teacher(s)	Lecture
1	19. 2.	21. 2.	MC/JL	1 (intro)
2	26. 2.	28. 2.	MC/SB	2 (vectors and matrices)
3	4. 3.	6. 3.	MC/VN	3 (indexing)
4	11. 3.	13. 3.	JT/VA	4 (loops, branching)
5	18. 3.	20. 3.	VA/	5 (functions1)
6	25. 3.	27. 3.	JL/	6 (functions2)
7	8. 4.	3. 4.	JL/JT	7 (strings)
8	15. 4.	10. 4.	VA/SB	8 (visualization)
9	22. 4.	17. 4.	VA/	9 (static GUI)
10	29. 4.	24. 4.	VA/	10 (dynamic GUI)
11	6. 5.	9. 5. (Thu)	VN/SB	11 (timer, sorting operations)
12	13. 5.	15. 5.	VN/	12 (set operators, OOP)
13	20. 5.	22. 5.	All	13 (test, projects)

Principles

- The aim of the course is to teach you something – if the presentation is to 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.

Literature

- 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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