Course Information

B0B17MTB, BE0B17MTB – MATLAB

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September 23
Winter semester 2024/25

- 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.
  - To write a test (last week of the semester, 20 points, min. 5 points).
  - To gather points from semester (40 points, min. 20 points):
    - short test during semester (15 points),
    - homeworks (1×5 points, 2×10 points).
  - Max. 2 missed classes (more absences only after prior arrangement).
    - There are two courses taught this semester, any lecture can be substituted.
- It 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/b241/courses/b0b17mtb

Grade	Points
A	90 – 110
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

Jonáš Tuček
Course assistant

Jakub Liška
Course assistant

Vojtěch Neuman
Course assistant

Štěpán Bosák
Course assistant

Martin Žlábek
Course assistant

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

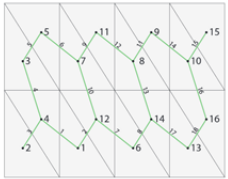
Categories of Slides

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

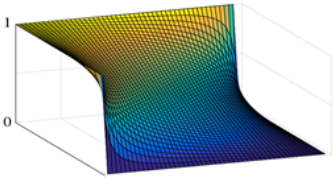
Introduction	Operators
Matrix operations	Visualization
Data Types	Code Execution
Program Flows	GUI
Scripts and Functions	Symbolic Math

Competition Assignment

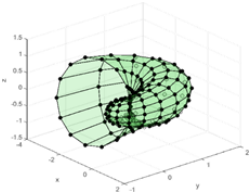
- Selected assignments from previous semesters:



Graph analysis



Jacobi method



Effective plotting

- see https://cw.fel.cvut.cz/b241/courses/b0b17mtb/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 (5 points)
4	Loops and program branching
5	Functions homework (10 points)
6	Advanced data types
7	Error treatment and debugging, short test (15 points)
8	Visualization, project choice
9	Static GUI
10	Dynamic GUI, homework (10 points)
11	Object-oriented programming and time classes
12	Advanced example of MATLAB usage
13	Bonus lecture
14	Final test (20 points), presentation of projects (50 points)

Schedule

Week	Date (CZ)	Date (EN)	Teacher(s)	Lecture
1	23. 9.		MC/JT	1 (introduction)
2	30. 9.		SB/MZ	2 (vectors and matrices)
3	7. 10.		SB/MZ	3 (vectorization, indexing, hw1)
4	14. 10.		JT/SB	4 (loops, branching)
5	21. 10.		JL/SB	5 (functions, hw2)
6	28. 10.		–	–
7	4. 11.		JT/SB	6 (data types)
8	11. 11.		JT/SB	7 (debugging, sem. test)
9	18. 11.		VA/	8 (visualization)
10	25. 11.		VA/	9 (static GUI)
11	2. 12.		VA/	10 (dynamic GUI, hw3)
12	9. 12.		VN/	11 (OOP, time classes)
13	16. 12.		SB/JT	12 (advanced example)
14	6. 1.		All	13 (fin. test, projects)

Principles

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

AI Tools

- Our goal (and yours as well, we hope), is to teach you something new. Not just copy-paste prompts/replies from AI tools.
- Use AI tools (ChatGPT, Claude, Github Copilot, ...) if you like. But use them with caution.
- In any case, you are the sole author of the code. Be responsible. Always fully understand the code. Test it.
- The recommendation is not to use AI tools to accomplish the homework – you can be asked about the meaning of any line.

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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