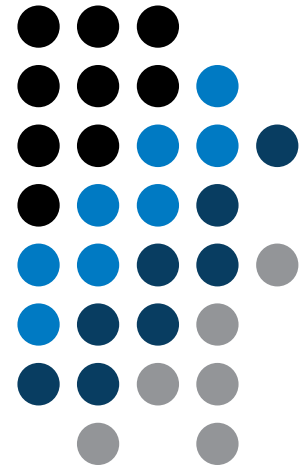# Course Information

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A0B17MTB

- 13 weeks (14th week is a 'reserve')

  - 11 blocks with new theory, 1 block of bonuses, 1 block of examples

- conditions of credit award:

  - to hand in a project (<u>next-to-last week of the semester</u>, 60 points)

    - **competition assignment** (see next slide)

  - to pass a test, 20 points (min. 50%, next-to-last week)

    - on top of that two short tests during semester, 20 points (min. 10 points are needed)

    - 3 bonus examples during the semester, 5 bonus points

  - max. 2 missed classes (more absences only after prior arrangement)

    - 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/a0b17mtb/start

Data types	Code execution	Visualization	Relation and logical operators
Matrix operations	User scripts and functions	Numerical methods	Symbolic math

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Competition assignment

- assignments from previous semesters:
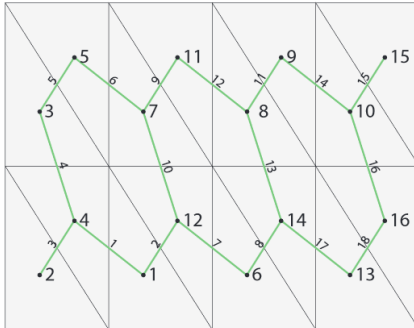
Graph analysis   **Jacobi method**   **Effective plotting**
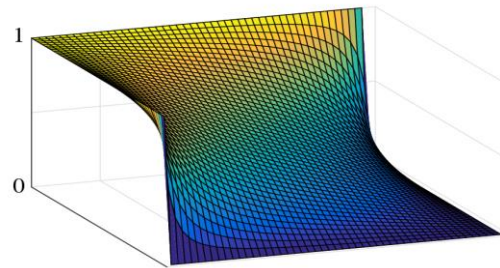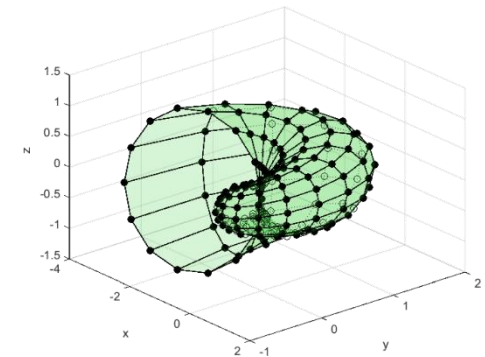
- see https://cw.fel.cvut.cz/wiki/courses/a0b17mtb/projects/soutez
- project can be selected by any number of students
- conditions:
  - project is completed according the assignment → credit award
  - project is the best one → winning the competition
    - prizes for the first three winners

A0B17MTB – Course syllabus

1	Introduction, information on the course, MATLAB workspace, basic arithmetic operators, basic functions
2	Complex numbers, complex matrix design, matrix operations, element-by-element operations, introduction to vectorization, matrix dimension
3	Indexing, data type and size, output format
4	MATLAB Editor, script design, relation and logical operators, cells
5	Cycles, cycles vs. vectorization, control flow, program branching
6	Visualization in MATLAB #1, debugging
7	Set operations, sorting, searching, user-defined functions #1
8	Functions #2 (main functions, subfunctions, nested functions, anonymous functions)
9	Struct, strings, 'eval' and 'feval' functions, MATLAB path
10	Visualization in MATLAB #2, GUI #1
11	GUI #2
12	Date and time functions, error handling, I/O, basics of symbolic computations
13	Exercises , test
14	(Reserve)

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A0B17MTB – Deadlines

1	call for project proposals
2	
3	*bonus example (1-3 points)*, list of projects, discussion on own topics
4	
5	*short test (approx. 10-15 min) aimed on solving given problem in Matlab, 10 points*
6	project choice
7	*bonus example (1-3 points)*
8	*short test (approx. 10-15 min) aimed on solving given problem in Matlab, 10 points*
9	
10	*bonus example (1-3 points)*
11	
12	
13	*test (20 points), project hand-in (next-to-last week of the semester, 60 points), credit award*
14	reserve, competition assignment measurement

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Credit award

	Points	Min. points
Bonus example #1	2	
Short test #1	10	
Bonus example #2	1	
Short test #2	10	**10**
Bonus example #3	2	
Test	20	**10**
Project	60	**30**

Grade	Points
A	90–100
B	80–89
C	70–79
D	60–69
E	50–59
F	0–49

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A0B17MTB – Schedule

- harmonogram of SS 2016/2017 (also on the web page):

	1. týden		2. týden		3. týden		4. týden		5. týden	
	2.10.	4.10.	9.10.	11.10.	16.10.	18.10.	23.10.	25.10.	30.10.	1.11.
	PO 16:15	ST 16:15	PO 16:15	ST 16:15	PO 16:15	ST 16:15	PO 16:15	ST 16:15	PO 16:15	ST 16:15
poznámka			(EumWeek)	(EumWeek)						
master	Míla	Míla	Míla	Míla	Míla	Míla	Viktor	Viktor	Viktor	Viktor
slave	Michal	Viktor	Michal	Michal	Michal	Viktor	Míla	Míla	Michal	Míla
náplň	1 (úvod)	1 (úvod)	2 (matice)	2 (matice)	3 (indexace)	3 (indexace)	4 (editor, relac. op.)	4 (editor, relac. op.)	5 (cykly, vetveni)	5 (cykly, vetveni)
harmonogram					bonusový příklad	bonusový příklad			1. písemka	1. písemka

	6. týden		7. týden		8. týden		9. týden		10. týden	
	6.11.	8.11.	13.11.	15.11.	20.11.	22.11.	27.11.	29.11.	4.12.	6.12.
	PO 16:15	ST 16:15	PO 16:15	ST 16:15	PO 16:15	ST 16:15	PO 16:15	ST 16:15	PO 16:15	ST 16:15
poznámka										
master	Viktor	Viktor	Míla	Míla	Viktor	Viktor	Míla	Míla	Michal	Michal
slave	Michal	Míla	Michal	Michal	Michal	Míla	Michal	Viktor	Viktor	Viktor
náplň	6 (vizual. 1)	6 (vizual. 1)	7 (mnoz. op., fcn. 1)	7 (mnoz. op., fcn. 1)	8 (funkce 2)	8 (funkce 2)	9 (textové řetězce)	9 (textové řetězce)	10 (gui1)	10 (gui1)
harmonogram	zadání projektů	zadání projektů	bonusový příklad	bonusový příklad			2. písemka	2. písemka	bonusový příklad	bonusový příklad

	11. týden		12. týden		13. týden		14. týden				soutěž
	11.12.	13.12.	18.12.	20.12.	1.1.	3.1.	8.1.	10.1.			
	PO 16:15	ST 16:15	PO 16:15	ST 16:15	PO 16:15	ST 16:15	PO 16:15	ST 16:15	PO 16:15	ST 16:15	
poznámka	(KatParty)				Státní svátek						bude doplněno (viz web)
master	Michal	Michal	Michal	Michal		Míla	Míla				
slave	Viktor	Míla	Viktor	Míla		Viktor	Viktor		Michal	Michal	
náplň	11 (gui2)	11 (gui2)	12 (bonusy)	12 (bonusy)		13 (test, proj.)	13 (test, proj.)	14 rezerva			
harmonogram						test, zápočet	test, zápočet				soutěž

Náplň předmětu:

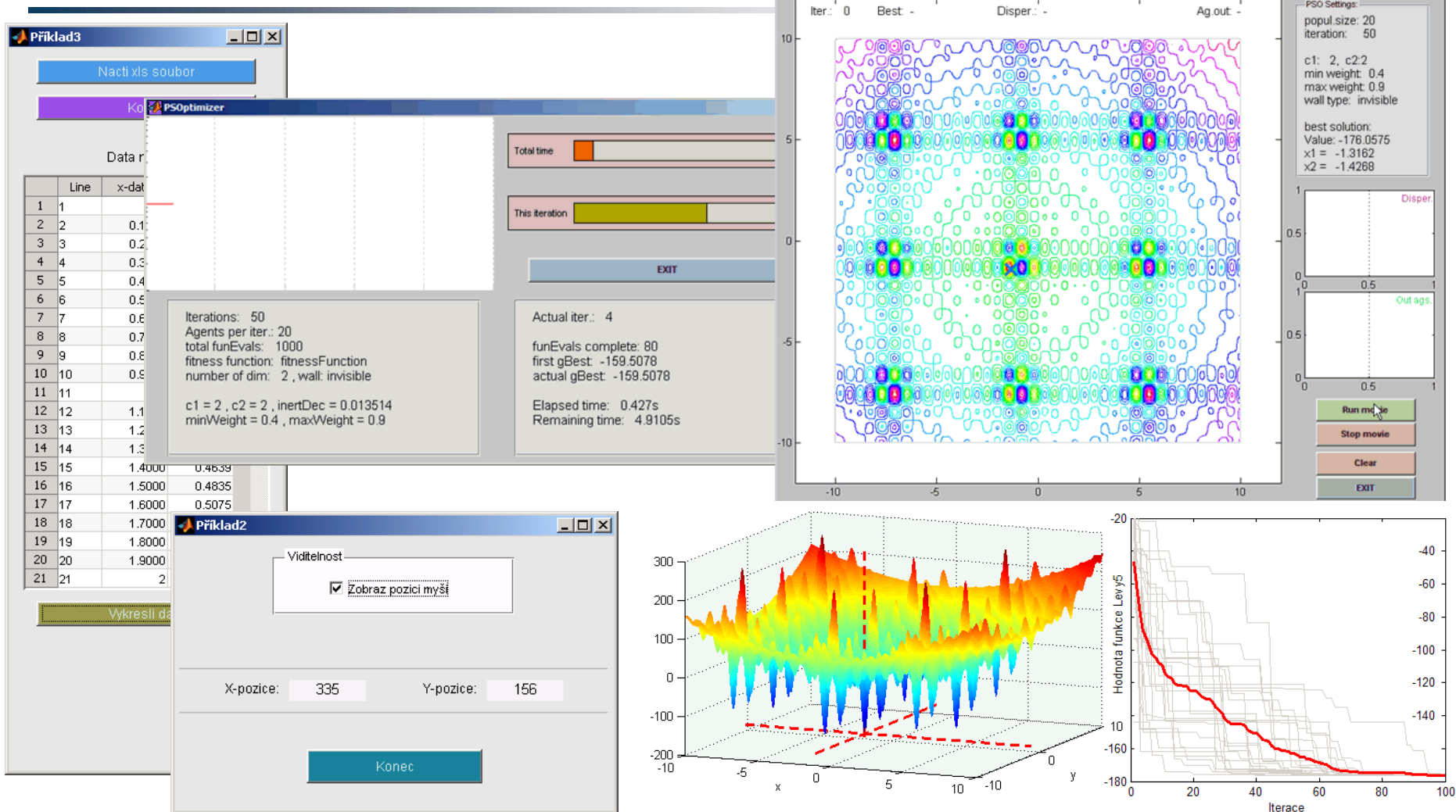| 1 (úvod)	5 (cykly, vetveni)	9 (textové řetězce)	13 (test, proj.)
2 (matice)	6 (vizual. 1)	10 (gui1)	14 (rezerva)
3 (indexace)	7 (mnoz. op., fcn. 1)	11 (gui2)	
4 (editor, relac. op.)	8 (funkce 2)	12 (bonusy)	
zadání projektů	1. písemka	2. písemka	test	zápočet	soutěž	bonusový příklad

Pozn.: bonusový příklad je za 1-3b a vybrán ze šedých příkladů (případně zcela mimo slajdy).
Pozn.: věcná část harmonogramu může být postupně mírné zpozděna

- this is how the bonus slides look like (see the background color...)

A0B17MTB – 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

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You will be able to …

- see the previous students' projects

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Recommended literature, resources

- Matlab documentation

```
>> doc % opens the help browser
```

- Basic web-based textbooks on Matlab (so called primers)
  - `www.mathworks.com/help/pdf_doc/matlab/getstart.pdf`
  - `http://artax.karlin.mff.cuni.cz/~beda/cz/matlab/primercz/matlab-primer.html`

- 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...

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Thank you!

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