MATLAB-Programming for Engineers: Administration Lecture 0

Dr. Zsolt Kollár

BME MIT
http://mit.bme.hu

2020

Table of contents

Personal staff

Members of the MATLAB Laboratory are holding the lectures and laboratory exercises.

- Lecturers:
  - Dr. Zsolt Kollár (kollarzs@mit.bme.hu)
  - Barna Csuka (csuka@mit.bme.hu)
- Lab instructor:
  - Dr. Zsolt Kollár (kollarzs@mit.bme.hu)
  - Barna Csuka (csuka@mit.bme.hu)

Lectures and laboratory exercises

The laboratory exercises intend to solve engineering problems closely related to the material presented in the lectures.

- Lectures:
  - Time: Tuesday at 10:15 - 12:00
  - Place: Building I, Room IB413
- Lab exercises:
  - Time: Thursday 10:15 - 12:00
  - Building I, Room IE224

  Please bring you own laptops if possible!

Timeline and important dates

- Week 1-13: MATLAB, Simulink, Polyspace
  - Week 6: project proposal - 1 pager
  - Week 7-8: finalizing the project proposal
- Week 14: Consultation

Preliminary schedual

1. Introduction
2. Functions, Cody
3. Debugger, development tools, profiler
4. Data import and graphics
5. Objects and streaming
6. Validation, exception handling
7. Grapical user interface (GUI)
8. Simulink
9. Digital signal processing
10. Deeplearing, neural networks
11. POLYSPACE + Symbolic toolbox
12. Performance and memory managment
13. Deployment
14. Consultation

Project work

- Project has to be approved by one of the course instructors.
- Project proposal (1 page) has to be created using the template file from the portal
  - Project name
  - Project members
  - Project description
  - Project timeline
  - Project deliverables
- Teams can be working on one project, but the work has to be clearly separated between the members.
- At the end of the course, the project work has to presented as part of the oral exam
- Live Editor is prefered for short documentation or demonstration (documentation is less important then the functionality of the project!)
- GUI is also welcome!

Homeworks and POW

- Homework after each laboratory exercise
- Homeworks should be handed in through the MATLAB Grader. A solution is accepted if it passes the test. At least half of the homeworks should be accepted.
- Problem of the week (POW) – usually a tricky problem – is given after each lecture, it can be handed in per email, the fastest correct solution can be exchanged for a homework.

Exam

- Oral exam, approximately 25 minutes/person usually a designated time slot between 8-12.
- 15 minutes project presentation + questions
- Presentation using beamer (HDMI or VGA input) + own laptop
- 10 minutes discussion about the course material

Table of contents

BME has a Total Academic Headcount (TAH) License. Meaning that you can dowload and use a fully operational MATLAB on your computer for research and study purposes.

1. Create a user account with your university email address at: `www.mathworks.com/mwaccount/register`
2. Log in and check associated lincenses: `www.mathworks.com/licensecenter/licenses`
3. Download, install and activate your copy using your account settings

Materials and references

- Home page:

  `https://www.mit.bme.hu/oktatas/targyak/vimiav23`

  lectures pdfs, example .m files, lab exercises and solutions
- Book in Hungarian: Stoyan Gisbert: MATLAB (ISBN 978-963-2794-40-2)
- MATLAB introduction pdf in English: `https://www.mccormick.northwestern.edu/documents/students/undergraduate/introduction-to-matlab.pdf`
- MATLAB coding style by Richard Johnson: `https://www.mathworks.com/matlabcentral/fileexchange/46056-matlab-style-guidelines-2-0`
- MATLAB documentation: `https://www.mathworks.com/help/matlab/`