

SYLLABUS

I. GENERAL DATA ON SUBJECT COURSE	
CODE AND NAME OF SUBJECT (in Estonian and English)	CNS.068 Introduction to MATLAB and SIMULINK <i>Sissejuhatus tarkvarakeskkondadesse MATLAB ja SIMULINK</i>
ACADEMIC YEAR, TERM	2019/2020 fall term, e-study
CURRICULUM, SPECIALITY AND MODULE WHERE THE SUBJECT BELONGS TO	Module of ER, e-course Students from all aviation specialities
VOLUME OF SUBJECT (ECTS)	2 ECTS
FORM OF CONTROL	Non-differentiated assessment
WORKLOAD AND FORMAT OF STUDIE	Lecture 6h, Individual work, e-seminars 46 h
LANGUAGE OF INSTRUCTION	English
ADDITIONAL INFORMATION (PREREQUISITE SUBJECT COURSES, RESTRICTIONS)	Knowledge of English at upper-intermediate level (CEF B2). Basic knowledge about computer programming.
LECTURER	Allan Tart, MSc

II. GOAL OF SUBJECT, LEARNING OUTCOMES AND SHORT DESCRIPTION OF THE COURSE	
GOAL OF SUBJECT COURSE	To give the basic knowledge about calculations in MATLAB and model-based design in SIMULINK
LEARNING OUTCOMES	After the completion of the course the student: <ol style="list-style-type: none"> 1. Knows the basic functions of MATLAB. 2. Has a basic overview of modelling, simulation and analysis workflow in SIMULINK.
SUBJECT COURSE DESCRIPTION	Operations, variables, matrices, functions, scripts, modelling, simulation, analysis, toolboxes.

III. GRADING SYSTEMS AND CRITERIA	
PREREQUISITES TO BE ALLOWED TO TAKE EXAMINATION/PRELIMINARY EXAMINATION	Each practice tasks will be graded in 10 points scale based on two categories: reasonableness of the solution and quality of solution report . To be able to get personal assignment, student has to have at least 75% from the maximum possible point sum. If student will be late with the delivery of the practice, two extra exercises will be assigned.
FORMATION OF EXAMINATION MARK/OF PRELIMINARY EXAM	Each student will solve an individually given problem and report the solution.

	At least 51% result has to be achieved in individual assignment.
OPPORTUNITIES FOR SETTling ARREARS/INSUFFICIENCIES IN ACADEMIC PROGRESS	Individual assignment can be remaked.

IV. SCHEDULE AND LIST OF TOPICS

WEEK OF YEAR	WORK FORMAT	TOPICS	LECTURER
Week 36	Lecture 2h	Introduction and warming up for course.	A. Tart
Week 37	Practice 5h	Basic operations, Matrices and Arrays, Indexing	A. Tart
Week 38	Practice 5h	Language fundamentals	A. Tart
Week 39	Practice 5h	Graphics	A. Tart
Week 40	Lecture 2h	Consultation	A. Tart
Week 41	Practice 5h	Programming and Scripts	A. Tart
Week 42-43	Practice 10h	SIMULINK	A. Tart
Week 44	Practice 5h	Different Matlab toolboxes	A. Tart
Week 45-47	Practice 11h	Work with individual project. Matlab Live Script.	A. Tart
Week 48	Lecture 2h	Conclusions	A. Tart

V. LEARNING MATERIALS

Compulsory materials:

1. Moodle course: <https://moodle.eava.ee/enrol/index.php?id=189>
2. MATLAB and SIMULINK documentation available in Moodle and in mathworks.com website.
3. A Guide to MATLAB: for Beginners and Experienced Users / Brian R.Hunt, Ronald L.Lipsman, Jonathan M.Rosenberg. Hunt, Brian R., New York: Cambridge, 2006.

Additional materials recommended:

1. <http://se.mathworks.com/support/learn-with-matlab-tutorials.html>