Institute of Biomatics and Applied Artificial Intelligence						
Name of the subject:	Code of the subject:	Credits:	Weekly hours:			
				lec	sem	lab
Intelligent Development tools	NMXIF1SMNE	3	full-time			
Responsible person for the subject:			Classification:			
Subject lecturer(s): Dr Kósi Krisztián						
Prerequisites:						
Way of the assessment:	Midterm Grade					

Course description	
Goal:	Introduce modern scientific computational tools
Course description:	Learn modern, open source computational tools for scientific computing, to solve hard mathematical problems, related to nonlinear control theory.

Lecture schedule	
Education week	Topic
1.	Introduction, LaTeX based word processing and Julia programming language
2.	Mathematical background
3.	Numerical computationtation, and documentation and p
4.	Stability of Differential equations and basics of root-finding methods
5.	Numerical derivates, advanced root-finding methods, Quasi-Newton Methods
6.	Introduction to Vector calculus, and metric spaces
7.	Introduction to Non-Linear control
8.	Robust Control: VS/SM SISO
9.	Robust Control: VS/SM MIMO
10.	Adaptiv Control: RFPT SISO
11.	Adaptiv Control: RFPT MIMO
12.	Numerical Integral with Taylor polynoms
13.	Errors of numerical calculations
14.	Modelling

Mid-term requirements	
Conditions for obtaining a mid-term grade/signature	**Results of the homework problems. Who absent more than 30% will be denied from the course.**

Assessment schedule	
Education week	**Topic**

Method used to calculate the *mid-term grade* (to be filled out only for subjects with mid-term grades)

Results of the homework problems.
Achieved result
Grade
86%-100% excellent (5)
74%-85% good (4)
62%-73% average (3)
50%-61% satisfactory (2)
0%-49% failed (1)

Type of the replacement

Type of the replacement of written test/mid-term grade/signature	**Retake Exam from the mathematical problems, which covered in the semester.**
Type of the exam (to be filled out only for subjects with exams)	
Calculation of the exam mark (to be filled only for subjects with exams)	
Final grade calculation methods:	
References	
Obligatory:	**Lecture Notes**
Recommended:	System and Control Theory - József K. Tar - László Nádai - Imre J. Rudas. TYPOTEX 2012, ISBN 978- 963-279-676-5 Applied Nonlinear Control, Slotine and Li, Prentice-Hall 1991
Other references:	