Conf. Dr. Ing. Cristina Muresan

Nr.crt.	Titlu lucrare	Scurta descriere	Cerinte	Nivel (licenta/master)
1	Automatic identification of process models from step response data	Modeling, parameter estimation, Matlab programming skills, testing and validation, analysis of results. It is required to design a graphical user interface and program for robust estimation of a process model from highly corrupted step response data	System theory System identification Control engineering I/ II Matlab	Master
2	Autotuners applied to a vertical take off and landing system (VTOL)	Design of various PID controllers based on existing autotuning methods for the VTOL system, discrete-time implementation of standard PID controller, experimental testing and validation, analysis of results and comparisons	System theory System identification Control engineering I/ II Matlab	Master
3	Fractional order autotuners for a vertical take off and landing system (VTOL)	Design of various fractional order PID controllers based on existing autotuning methods, the discrete-time implementation of controller, experimental testing and validation, analysis of results and comparisons	System theory System identification Control engineering I/ II Matlab	Licenta
4	Predictive control of the hemodynamic system	Analysis of the hemodynamic system (MIMO system, interaction, pairing), design of MIMO IMC controller, discrete-time implementation, Matlab simulation testing and validation, analysis of results	System theory System identification Control engineering I/ II Matlab	Master

5	Predictive control of the general anaesthesia system	Analysis of the anaesthesia system, design of the predictive controller, discrete-time implementation, Matlab simulation testing and validation, analysis of results	System theory System identification Control engineering I/ II Matlab	Master
6	Decentralised PID control of the hemodynamic system	Analysis of the hemodynamic system (MIMO system, interaction, pairing), design of decentralised PID controllers, discrete-time implementation, Matlab simulation testing and validation, analysis of results	System theory System identification Control engineering I/ II Matlab	Licenta
6	Decoupling PID control of the hemodynamic system	Analysis of the hemodynamic system (MIMO system, interaction, pairing), design of steady state decoupler, design of PID controllers, discrete-time implementation, Matlab simulation testing and validation, analysis of results	System theory System identification Control engineering I/ II Matlab	Master
7	Advanced learning algorithm based on individual electric network	Analysis and interpretation of individual electric network using machine learning algorithms and system identification strategies.	System Identification System Theory Python Machine Learning Mathematical Analysis Matlab	Licenta
8	A fractional order event based PID controller for a vertical take off and landing system	Modeling, parameter estimation, study of event based concepts and algorithms, design of PID controller for the VTOL system, discrete-time implementation of standard PID controller, event based implementation of the PID	System theory System identification Control engineering I/ II Matlab Advanced control strategies	Master

		controllers, experimental testing and validation, design of FO-PID controller for the VTOL system, discrete-time implementation of standard FO-PID controller, event based implementation of the FO-PID controller, experimental testing and validation, comparisons with PID version		
9	Fractional order IMC control of the general anaesthesia system	Analysis of the anaesthesia system, design of FO-IMC controller, discrete-time implementation, Matlab simulation testing and validation, analysis of results	System theory System identification Control engineering I/ II Matlab Advanced control strategies	Licenta
10	Decentralised PID control of general anaesthesia system	Analysis of the anaesthesia system, (MIMO system, interaction, pairing), design of decentralised PID controllers, discrete-time implementation, Matlab simulation testing and validation, analysis of results	System theory System identification Control engineering I/ II Matlab Advanced control strategies	Licenta
11	Decoupling PID control of general anaesthesia system	Analysis of the anaesthesia system (MIMO system, interaction, pairing), design of steady state decoupler, design of PID controllers discrete-time implementation, Matlab simulation testing and validation, analysis of results	System theory System identification Control engineering I/ II Matlab Advanced control strategies	Licenta
12	Towards a complete control system for general anaesthesia-hemodynamic	Analysis of the anaesthesia system, analysis of the hemodynamic system, study of	System theory Control engineering I/ II Process modeling	Master

	system interaction during surgery	the effect of surgical stimulus based on clinical data, coupling of the two systems with surgical stimulus as disturbance, Matlab simulations of various scenarious, validation with respect to available data, analysis of the resulting MIMO system	Matlab	