Conf. Dr. Ing. Cristina Muresan

Nr.crt.	Titlu lucrare	Scurta descriere	Cerinte	Nivel (licenta/master)
1	Simple control system design for autonomous surgeon using omni bundle https://www.quanser.com/products/omni-bundle/#productdetails	Design of position control system using PIDs for the omni bundle equipment. The student designs and tests the control algorithm using Matlab simulations, implements and validates experimentally the design controller, analyses the results.	System theory Matlab programming skills are required, excellent knowledge of CE 1 and 2.	Master/ Licenta
2	Advanced control system design for autonomous surgeon using omni bundle https://www.quanser.com/products/omni-bundle/#productdetails	Design of position control system using fractional order PIDs for the omni bundle equipment. The student designs and tests the control algorithm using Matlab simulations, implements and validates experimentally the design controller, analyses the results.	System theory Matlab programming skills are required, excellent knowledge of CE 1 and 2.	Master
3	Validation of a novel IMC controller on a vertical take off and landing (VTOL) system https://www.ni.com/en-us/support/model.quanser-qnet-vtol-board-2-0-for-ni-elvis-ii-ii-.html	Study of the basic IMC method and the new version for improved disturbance rejection. Comparisons for a vertical take off and landing unit (Matlab simulation). Implementation and validation on the VTOL system. Analysis of results	System theory Matlab programming skills are required, excellent knowledge of CE 1 and 2.	Licenta
4	Proiectarea unor algoritmi de control pentru reglarea	Proiectarea unui regulator PID folosind diverse metode,	Teoria sistemelor Matlab	Licenta

	nivelului intr-un rezervor	implementarea si testarea acestora pentru reglarea nivelului intr-un rezervor. Comparatii si analiza rezultatelor	IRA1 si IRA2	
5	Speech/facial recognition on QBOT 2e system https://www.quanser.com/video/qbot-2-quarc/	Research of state of the art. Design and implementation of an adequate algorithm for either facial or speech recognition using the QBOT 2e system. Analysis of the results.	Matlab Programming skills	Master
7	Design and implementation of a novel FO autotuning method	Research on FO autotuners. Design of a novel approach and comparison with similar methods. Simulation results. Implementation and experimental validation on several dead-time processes.	System theory Matlab programming skills are required, excellent knowledge of CE 1 and 2.	Master
8	Event-based PID control for the anaesthesia system	Study of event based concepts and algorithms, study of anaesthesia and automatic control, design of PID controller for the anaesthesia system, discrete-time implementation of standard PID controller, event based implementation of the PID controllers, comparisons and analysis of results	System theory Matlab programming skills are required, excellent knowledge of CE 1 and 2.	Master
9	Design of a patient simulator and automatic drug dosing system in general anaestehsia	Build a patient simulator (Simulink diagram) to run on a computer/tablet + a myrio device that is running the control algorithm	System theory Matlab programming skills are required, excellent knowledge of CE 1 and 2.	Master/Licenta
10	Direction and position control using an EMG envelope signal	Process the acquired EMG signal using a linear envelope. EMG	System theory Matlab programming skills are required,	Licenta

	https://www.quanser.com/wp-content/uploads/2017/03/QNET-Myoelectric-Datasheet-v1.0.pdf	control design for opening and closing the clamp on the servo.	excellent knowledge of CE 1 and 2. Signal processing	
13	Control predictiv sistem hemodinamic	Design of predictive controller for a benhmark simulator of the hemodynamic system (two inputs-two outputs, Matlab simulation)	System theory Matlab programming skills are required, excellent knowledge of CE 1 and 2.	Licenta
15	Experimental validation and analysis of advanced control strategies for velocity control	Mathematical modeling of a velocity system. Design of several advanced control algoroithms. Matlab simulations and comparisons. Experimental implementation and validation.	System theory Matlab programming skills are required, excellent knowledge of CE 1 and 2.	Licenta