Suggestions for elective courses MSc Systems and Control 2023-2024

TU/e EINDHOVEN UNIVERSITY OF TECHNOLOGY

Quarter 1

					Brief explanation:
ME Dynamics and Control	4DM00	Structural Dynamics and vibro-acoustics	A	5	
Mathematics and Computer Science - Mathematics	2DBN10*	Advanced calculus	D	5	*Difficult course. For student that want to learn more about the background of the mathematical topics that are used in the master.*
Mathematics and Computer Science - Mathematics	2DME20	Non-linear optimization	C	5	*Treats general topics for optimization relevant for almost all master students*
ME Power and Flow	4BM00	Advanced engineering mathematics	E	5	*Helpful to gain more insights about Differential equations and relies on analytical math. A good starter course for Dynamics and Control (easier understanding of proof and theorems of Nonlinear systems)*

Quarter 2

EE Signal Processing Systems	5SSD0	Bayesian machine learning and information processing	D2	5	*Introductory course for bayesian learning, relevant for controlling machines by using active learning*
Mathematics and Computer Science - Mathematics	2MMA10	Applied functional analysis	D	5	*Very difficult math course but gives a really good grip on operators (linear maps) of any type*
EE Control Systems	5XWC0*	Energy management	A	5	

Quarter 3

Industrial Engineering & Innovation Sciences	1ZM65	System dynamics	D2	5	*Applies the knowledge obtained in the SC master to businesses*
Mathematics and Computer Science - Mathematics	2WAH0*	Tensor calculus and differential geometry	E	5	*Very useful math course for a better understanding of non-linear control problems and solutions.*
EE Video coding & architectures	5LSM0	Convolutional neural networks for computer vision	E	5	*A good introduction course for Computer vision and Neural Networks.(Recommmended for those who aren't familiar with Neural networks)*
EE Electrical Energy Systems	5SVB0	Electromagnetic compatibility	E	5	*Another useful power electronics course that provides key insights into practical design of mechatronics*
ME Control Systems Technology	4CM90	Opto-mechatronics	A	5	

Quarter 4

ME Dynamics and Control	4DC00*	Dynamics and control of robotic systems	A	5	
ME Control Systems Technology	4CM50	Applications of design principles	D	5	*For students that would also like to learn about the hardware design itself*
EE Control Systems	5LMF0	*Control challenges in autonomous racing - on hold in 2022/23*	E	5	
EE Signal Processing Systems	5LSL0**	Machine learning for signal processing	A2	5	*A general course on machine learning for students to get to know the topic*
EE Electromechanics and Power Electronics	5LWG0	Power electronics for high-precision applications	B2	5	*Students regularly only take Control/Math/Mechanical courses. This course provides the knowledge to communicate better with electrical engineers in future projects*

Check actual information about quarter and timeslot in OSIRIS

**Bachelor course: approval depends on bachelor profile and specialization. The total amount of bachelor and homologation courses may not exceed 15 credits*

***Course with a maximum capacity, more information can be found in the OSIRIS catalogue*

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