

## Model Predictive Control of Energy Systems

### Schedule SS 2021 – Lecture (L2) and Exercise (E2)

No.	CW	Date	Lec.	Ex.	Lecture: anytime during the week (online)	
					Exercise: Wednesday, 16:30-18:00 (Zoom)	
1	15	14.04.	2 Ds	2 Sm/Ba	Organization & Introduction	Introduction to MATLAB/Simulink
2	16	21.04.	2 Ds	2 Sm/Ba	Fundamentals of Optimization	Linear System Analysis
3	17	28.04.	2 Ds	2 Sm/Ba	Linear MPC – Unconstrained	Linear Prediction & Linear State Controller
4	18	05.05.	2 Ds	2 Sm/Ba	Linear MPC – Constrained	Constraints
5	19	12.05.	2 Ds	2 Sm/Ba	Linear MPC – Further Aspects	Offset-free Tracking & Deadtime
6	20	19.05.	2 Ds	2 Sm/Ba	Linear MPC – Further Aspects & Time Variance	Tuning
Pentecost Week (Excursion week)						
7	22	02.06.	2 Ds	2 Sm/Ba	Control of Wind Energy Systems	Control of Organic Rankine Cycle
8	23	09.06.	2 Ds	2 Sm/Ba	Nonlinear MPC – Solving Constrained NLPs	SQP
9	24	16.06.	2 Ds	2 Sm/Ba	Nonlinear MPC – Discretization	Nonlinear MPC – Discretization
10	25	23.06.	2 Ds	2 Sm/Ba	Stability	Air Path Control
11	26	30.06.	2 Ds	2 Sm/Ba	Project (1/4)	Project (2/4)
12	27	07.07.	2 Ds	2 Sm/Ba	Project (3/4)	Project (4/4)
13	28	14.07.	2 Ds	2 Sm/Ba	NMPC at Embotech AG	Conclusion / Q & A
14	29	21.07.	2 Ds	2 Sm/Ba	Project Discussion	

**For further questions please contact:**

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**Further information regarding the course can be found under:**

<http://www.irt.rwth-aachen.de/go/id/ngil>

**State: March 30th 2021**