Computer Controlled Systems (CCS)
2020 fall
Planned schedule

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date	Lecture consultation: Tuesday 8:30 – 10:00 (Teams)	date	Practice:	date	TG Practice:
09. 08.	Introduction	09.11.	Math introduction	09.11.	Math introduction, Laplace transform, initial value problems, impulse response, transfer function
09. 15.	Mathematical models of LTI systems	09.18.	Laplace transform, initial value problems, impulse response, transfer function	09.18.	System models, transformations
09. 22.	Controllability and observability of continuous time LTI systems	09.25.	System models, transformations	09.25.	Controllability, observability, subspaces
09. 29.	Joint controllability and observability, minimal realizations	10.02.	Controllability, observability, subspaces	10.02.	Joint controllability and observability, minimality, system decompositions
10. 06.	Stability of continuous time LTI systems	10.09.	Joint controllability and observability, minimality, system decompositions	10.09.	CT-LTI systems stability
10. 13.	SISO LTI systems in the frequency domain	10.16.	CT-LTI systems stability	10.16.	SISO LTI systems in the frequency domain, basic control
10. 20.	Basic control of SISO LTI systems	11.23.	*National holiday*	11.23.	*National holiday*
10. 27.	*Autumn holiday*	11.30.	*Autumn holiday*	11.30.	*Autumn holiday*
11. 03.	Pole-placement control, state observer design	11.06.	SISO LTI systems in the frequency domain, basic control	11.06.	**1st Matlab practice:** basics, simulations, PID design
11. 10.	Linear Quadratic Regulator (LQR)	11.13.	**1st Matlab practice:** basics, simulations, PID design	11.13.	Pole-placement control, state observer design, LPV systems, LMIs
11. 17.	**Midterm test**	11.20.	Pole-placement control, state observer design	11.20.	**2nd Matlab practice:** pole-placement controller, state observer, LQR
11. 24.	Sampling, discrete-time system models	11.27.	**2nd Matlab practice:** pole-placement controller, state observer, LQR	11.27.	*Convex optimization or practicing midterm problems*
12. 01.	Analysis and control of discrete-time system models	12.04.	Discrete time systems	12.04.	**3rd Matlab practice:** Discrete time LTI systems: analysis and controller design, Kalman filter
12. 08.	*Church holiday*	12.11.	Lecture: discrete-time stochastic models, Kalman-filter	12.11.	Lecture: discrete-time stochastic models, Kalman-filter