

Wintersemester 2025/26

Course	Control Theory (3L, 1E, 1P)
Target group	ISE Master Program ME ISE Master Program Automation and Safety, Safe Systems
URL of the course	<a href="https://lehre.moodle.uni-due.de/course/view.php?id=5881">https://lehre.moodle.uni-due.de/course/view.php?id=5881</a>
Lecturer	Univ.-Prof. Dr.-Ing. Dirk Söffker
Assistant	Jonathan Liebeton, M.Sc.
About course	<p>In WiSe 25/26, the course will be realized in person at the university.</p> <p>The course is based on the following material (downloadable via Moodle): Lecture and exercise material (pdf)</p> <p>The basis of the course is the specified textbook (&gt; available in the textbook collection). The central teaching materials are available as encrypted PDF documents in the Moodle course.</p> <p>For each lecture unit a raw manuscript is published which can be downloaded in the Moodle course <b>from the beginning of the course</b>. This serves to structure/individualize the personal notes.</p> <p>For preparation/postprocessing of the lecture it is strongly recommended</p> <ul style="list-style-type: none"> <li>➤ <b>the previous substance,</b></li> <li>➤ <b>attending the consultation hours</b></li> <li>➤ <b>as well as reading the upcoming substance in the given chapters in advance (in the specified textbook/textbook) to work out.</b></li> </ul>
Material	Moodle: Control Theory - CTH ( <a href="https://lehre.moodle.uni-due.de/course/view.php?id=5881">https://lehre.moodle.uni-due.de/course/view.php?id=5881</a> )
Registration in Moodle	<p>The password can be requested via the e-mail address <a href="mailto:srs-pw@uni-due.de">srs-pw@uni-due.de</a>.</p> <p>The subject must contain only the word <b>CTH</b>.</p>
Day	Friday
Time	3:00 - 6:30 pm
First course	October 17th, 2025
Last course	January 30th, 2026
No course	December 19th, 2025 and January 9th, 2026
Room	SG 135

<b>Consulting hours</b>	Wednesday, 8.00 am - 9.30 am, Registration via Moodle, MB 326			
<b>Prerequisites</b>	Exam in Control Engineering - strong knowledge in dynamics (SISO, time and frequency domain)			
<b>Literature</b>	Textbooks (> Library): Ogata, K.: Modern Control Engineering 3. Edition, Prentice H. Lunze, J.: Regelungstechnik 2, Springer Ludyk, G.: Theoretische Regelungstechnik Vol 1/2, Springer Franklin, G.: Feedback Control of Dynamic Systems, 4th ed.			
<b>Content</b>	<b>Unit</b>	<b>Topic:</b>	<b>Chapter (Ogata):</b>	<b>Chapter (Lunze) :</b>
	1	State space	11.1 – 11.5	1-2.6
	2	Controllability and observability	11.6 f.	3
	3	Pole placement	12.1-12.4	6
	4	State observers	12.5-12.6	8.1-8.2
	5	Design of servo systems / Robust control	12.7 f.	4-5 7.1-7.5
	6	Liapunov stability	13.1-13.3	
	7	Model reference control	13.4-13.5	
	8	Quadratic optimal problems	13.6	7.1-7.5
	9	Advanced approaches		
	10	Discrete systems / discrete design		11-14
<b>Practical Exercise</b>	Mandatory, individually graded. See separate announcement.			
<b>Exam</b>	<p>Written exam, closed book, in the examination period.</p> <p><b>Bitte beachten Sie die ab SoSe24 geänderten Hinweise zu den zugelassenen Hilfsmitteln bei der Klausur.</b></p> <p><b>Please note the changes to the permitted aids for the exam from SoSe24.</b></p>			