

Modeling and Control of Robotic Manipulators					AR-212
Rota	Duration	Semester	SWS	Credit Points	Workload
annually SS	1 Semester	2nd (Semester)	3 SWS	5	150 h
<b>1</b>	<b>Modul structure</b>				
	<b>Course (Abbreviation)</b>	<b>Type/ SWS</b>	<b>Presence</b>	<b>Self study</b>	<b>Credits</b>
	a) Modeling and Control of Robotic Manipulators (MCRM)	Lecture/ 2 SWS	30 h	60 h	3
	b) Modeling and Control of Robotic Manipulators (MCRM)	Tutorial/ 1 SWS	15 h	45 h	2
<b>2</b>	<b>Language</b> English				
<b>3</b>	<b>Content</b> <ol style="list-style-type: none"> <li>1. Industrial Robots</li> <li>2. Actuators and Sensors</li> <li>3. Kinematics</li> <li>4. Differential Kinematics and Statics</li> <li>5. Dynamics</li> <li>6. Trajectory Planning</li> <li>7. Motion Control</li> <li>8. Interaction Control</li> <li>9. Control Architectures, Teach-in, Learning from Demonstration</li> <li>10. Visual Servoing</li> </ol> <b>Literature:</b> <ul style="list-style-type: none"> <li>• Sciavicco, Siciliano: Modelling and Control of Robotic Manipulators;</li> <li>• Craig: Introduction to Robotics, Mechanics and Control</li> </ul>				
<b>4</b>	<b>Goals</b> This course provides the students with a profound background on modelling, planning and control of robotic manipulators.				
<b>5</b>	<b>Examination Requirements</b> three practical assignments, written exam (3 hours)				
<b>6</b>	<b>Formality of Examination</b> <input checked="" type="checkbox"/> Module Finals <span style="float: right;"><input type="checkbox"/> Accumulated Grade</span>				
<b>7</b>	<b>Module Requirements (Prerequisites)</b>				
<b>8</b>	<b>Allocation to Curriculum:</b> Program: Automation & Robotics, Field of study: <b>Robotics</b> , <b>Cognitive Systems</b> ; Master Program: Electrical Engineering und Information Technology (ETIT-244)				
<b>9</b>	<b>Responsibility/ Lecturer</b> <i>Prof. Dr. Torsten Bertram/Dr. Frank Hoffmann</i>				