

<b>Modulbezeichnung</b>	<b>Mobile Robotics</b>	
<b>Semester</b>	WPF	
<b>Dauer</b>	1 Semester	
<b>Art</b>	Wahlpflichtfach	
<b>ECTS-Punkte</b>	5	
<b>Studentische Arbeitsbelastung</b>	60 h Kontaktzeit + 90 h Selbststudium	
<b>Voraussetzungen (laut BPO)</b>		
<b>Empf. Voraussetzungen</b>	C/C++ Programmierung, Matlab Seminar	
<b>Verwendbarkeit</b>	Mall	
<b>Prüfungsform und -dauer</b>	Studienarbeit oder mündliche Prüfung	
<b>Lehr- und Lernmethoden</b>	Seminar	
<b>Modulverantwortlicher</b>	G. Kane	
<b>Qualifikationsziele</b>	The goal of the course is for students to learn the fundamental concepts and algorithms central to Mobile Robotics. Through lectures and hand-on practical examples, the students should gain an understanding of the hardware structure of mobile robots; the choices of sensors and actors, the associated kinematics and sensor models and the impact of these choices on the aforementioned software algorithms.	
<b>Lehrinhalte</b>	The hardware components of a mobile robot, the kinematics of mobile robots, odometry models, probabilistic sensor models, mapping algorithms, SLAM, path planning, image processing, simulation based development, Robot Operating System (ROS)	
<b>Literatur</b>	Corke, P.: Robotics, Vision and Control, Springer 2017 Thrun : Probabilistic Robotics, MIT Press 2005 Bräunl T.: Embedded robotics : Mobile robot design and applications with embedded systems, Springer 2006	
<b>Lehrveranstaltungen</b>		
<b>Dozent</b>	<b>Titel der Lehrveranstaltung</b>	<b>SWS</b>
G. Kane	Mobile Robotics	4