TECHNISCHE UNIVERSITÄT KAISERSLAUTERN

Module Handbook

TUK MODHB Homapage

Course INF-61-33-K-6

Autonomous Mobile Robots (4V+2U, 8.0 LP)

Course Type

SWS	Type	Course Form	CP (Effort)	Presence-Time / Self-Study
-	K	Lecture with exercise classes (V/U)	8.0 CP	156 h
4	V	Lecture		56 h
2	U	Exercise class (in small groups)		28 h
(4V+2U)			8.0 CP	84 h / 156 h

Basedata

SWS	4V+2U
CP, Effort	8.0 CP = 240 h
Position of the semester	1 Sem. in SuSe
Level	[6] Master (General)
Language	[DE/EN] German or English as required
Lecturers	Berns, Karsten, Prof. Dr. (PROF | DEPT: INF)
Area of study	[INF-ES] Embedded Systems and Robotics
Livecycle-State	[NORM] Active

Possible Study achievement

- Verification of study performance: **proof of successful participation in the exercise classes (ungraded)**

- Details of the examination (type, duration, criteria) will be announced at the beginning of the course.

Contents

- AMR system components
- Kinematics and dynamics of wheel-driven robots
- Collision avoidance
- Navigation
- SLAM (Simultaneous Localisation and Mapping)
- Algorithms for the estimation of positions
- Vision in mobile robotics

Literature

- R- Siegwart and I.R. Nourbakhsh (2004). Introduction to Autonomous Mobile Robots. The MIT Press.
- S. Iyengar and A. Elfes (1991). Autonomous Mobile Robots - Perception, Mapping and Navigation, volume 1. Institute of Electrical and Electronic Engineers.
- Jones, J. L. (1993). Mobile Robots — From Inspiration to Implementation. Addison Wesley.
- Concrete literature will be announced in the lecture.

Requirements for attendance (informal)

None

Requirements for attendance (formal)

None

References to Course [INF-61-33-K-6]

Module	Name	Context	
[INF-61-33-M-6]	Autonomous Mobile Robots	P: Obligatory	4V+2U, 8.0 LP
Course-Pool	**Name**		
[INF-ES_V-KPOOL-6]	Lectures of the teaching area Embedded Systems and Robotics		