

Scheduling Problems and Solutions					AR-202
Rota	Duration	Semester	SWS	Credit Points	Workload
bi-annually SS	1 Semester	2 nd (Semester)	7 SWS	10	300 h
1	Modul Structure				
	Course (Abbreviation)	Type/ SWS	Presence	Self Study	Credit Points
	a) Scheduling Problems and Solutions (SPaS)	Lecture/ 4 SWS	45h	115 h	6
	b) Scheduling Problems and Solutions (SPaS)	Tutorial/ 2 SWS	25 h	75 h	3
	c) Scheduling Problems and Solutions (SPaS)	Lab/ 1 SWS	10 h	20 h	1
2	Language English				
3	Content Elements 1 and 2 <ol style="list-style-type: none"> Scheduling language and classes of schedules Complexity Single machine environments: makespan and total weighted completion time, lateness and tardy jobs, total tardiness and a non-regular objective function, a simple bicriterial problem Online problems in single machine environments Parallel machine environments: makespan, total weighted completion time, lateness, and online problems Flow shop, job shop, and open shop problems <p>Content Element 3: Practical approaches to solve scheduling problems including the use of Matlab and CPLEX</p> <p>Literature</p> <ul style="list-style-type: none"> Michael Pinedo: Scheduling - Theory, Algorithms and Systems, 4th edition, Springer Verlag, ISBN: 978-1-461-41986-0, 2012 				
4	Competencies The students know the classification of scheduling problems as well as the application of practical algorithms, heuristics, and methods in order to solve these combinatorial resource allocation tasks. They can evaluate the efficiency of classical solution methods and will be able to develop new solution approaches for complex scheduling problems based on their acquired knowledge.				
5	Examination Requirements Oral exam (40 min) The students must successfully participate in the lab course as preparation for the exam.				
6	Formality of Examination <input checked="" type="checkbox"/> Module Finals <input type="checkbox"/> Accumulated Grade				
7	Module Requirements (Prerequisites) Good knowledge in fundamentals of discrete mathematics and basics of algorithms				
8	Allocation to Curriculum: Program: Automation & Robotics, Field of study: Robotics, Cognitive Systems				
9	Responsibility/ Lecturer Prof. Dr.-Ing. Uwe Schwiegelshohn/ Prof. Dr.-Ing. Uwe Schwiegelshohn				