

Module number	Module name	Responsible lecturer
INF-BAS2	Artificial Intelligence	Prof. Dr. Björn Andres bjoern.andres@tu-dresden.de
Contents and qualification objectives	<p>The students understand the theory and master the methods for the independent conception, construction and programming of intelligent systems. Students are able to familiarize themselves with various topics in the field of artificial intelligence in both industry-related and research-oriented contexts and to apply their knowledge to solve problems independently. The content of the module is chosen by the students: Modelling and analysis of visual objects as well as methods of pattern recognition and computer vision, modeling and solution of complex problems with the help of declarative programming languages, ontology languages and other techniques of computational logic, theory of learning and advanced approaches in the field of machine learning and of statistical learning and methods for self-learning systems, techniques for solving planning and configuration problems as well as the combination of planning, decision theory and execution in rational agents and mobile robots, construction and methodology of autonomous robots, basic techniques for autonomous systems in complex systems that act rationally despite possible erroneous data and uncertain knowledge.</p>	
Contents		
Teaching and learning methods	<p>The module includes lectures, exercises and seminars in the amount of 8 SWS (semester weeks) and the self-study. The courses are to be selected from the INF-BAS2 catalogue to the specified extent, including at least 2 SWS lectures and 2 SWS exercises. Some courses of this module can be offered in English. The catalogue will be announced as usual at the Faculty of Computer Science, at the beginning of each semester, including the language of the courses.</p>	
Prerequisites for participation	<p>Knowledge and skills in the basics of artificial intelligence (search methods, knowledge representation, machine learning) are required. With the following literature, students can prepare for the module: Russell & P. Norvig: Artificial Intelligence - A Modern Approach.</p>	
Usability	<p>In the Master's programme in Computer Science, the module is one of eight elective basic modules, of which three must be chosen and one of seven elective basic modules, of which three must be chosen in the Diploma programme in Computer Science. This module fulfils the prerequisites for the following compulsory elective modules: Advanced Artificial Intelligence (INF-VERT2), Introduction to Basic Research in Computer Science (INF-PM-FOR) and Introduction to Applied Research in Computer Science (INF-PM-ANW) of the aforementioned Diploma programme.</p>	

Requirements for the awarding of credit points	The credit points are awarded if the module examination is passed. The module examination consists of an oral examination, with a duration of 30 minutes. At the student's request, the oral examination may be conducted in English.
Credit points and grades	The module allows for the earning of 12 credit points. The module grade corresponds to the grade of the oral examination.
Frequency of the module	The module is offered each semester.
Workload	The workload is a total of 360 hours.
Duration of the module	The module takes two semesters.