

Sommersemester 2023

Course	Machine learning (1V, 3S)
Zielgruppe	<p>Master Program: Mechanical Engineering – all programs Automation and Safety - Safe Systems and all programs Maschinenbau, Wirtschaftsingenieurwesen</p> <p>NOTE: Check if this course is really listed in your actual/updated program description.</p>
URL of the course	https://moodle.uni-due.de/course/view.php?id=38682
Lecturer	Univ.-Prof. Dr.-Ing. Dirk Söffker
Assistant	Jonathan Liebeton, M.Sc.
About course	<p>In SoSe 2023, the course will be realized in presence at the university.</p> <p>The realization is carried out via:</p> <ul style="list-style-type: none"> - Lecture and exercise material (pdf) - Lecture video material - Exercise video material <p>The commented material is published online 3 days before the lecture/exercise date in the Moodle course and can be downloaded. Downloading the commented versions after the lecture/exercise date is not possible. In principal learning exclusively with the video material is not recommended, in this case this is different. The main focus is with the seminar part, the lecture serves more as introduction. So ... feel free to take the introduction using the online material.</p> <p>The core part of the course is based on Mathworks' webinars as well as structured manuscripts for online learning. The main part of your work is appointment independent, the student can solve the learning and training part when s/he has time. The given appointments are serving as Q/A and discussion meeting point.</p> <p>The students will also earn Mathworks certificates. If the course is finalized the grading will be automatically realized by Mathworks. NO additional examination.</p> <p>The grading depends on the written final report.</p> <p>This course is based on the introduction into data-driven diagnosis and prognosis LU 4 and LU5 parts (which serves as introduction).</p> <p>This allows interested students to attend both courses in parallel and earn deep insights into Fault Detection and Diagnosis and Prognosis methods using Machine Learning.</p>

Material	Moodle: Machine learning- ML https://moodle.uni-due.de/course/view.php?id=38682 The password can be requested via the e-mail address srs-pw@uni-due.de . The subject must contain the word ML .
Day	Tuesday
Time	3.00 – 7.00 pm
Room	MB 242
First course	May 02, 2023
Last course	End of the semester, 2023
Literature	Literature is announced in the DAP-related text description
Additional Reading	To be announced during lecture
Content	<p>The main contents of the course are:</p> <ul style="list-style-type: none"> - Fundamentals of optimization strategies Application of machine learning models for clustering, classification, and regression - Basic design of intelligent controllers using reinforcement learning - Application of deep learning and implementation of network architectures <p>The data sets used are standard Mathwork data sets, public known data sets (with respect to fault detection and diagnosis tasks), as well as SRS data sets.</p>
Exam	The grade will be realized by evaluation of the written final report. The grade will be forwarded to the examination office in case of exam enrollment. We accept only students with exam enrollment.